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Classification in Gynæcology.

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IT is probable that the more one knows about a subject the less one troubles about its divisions and subdivisions. A classification is like a map, in that it becomes less and less necessary as the country it records grows more and more familiar. Thus, to the practical gynæcologist, the classification of the subject is a matter of minor interest; but it is of great importance alike to the teacher and to the student. Classification marks the transition of any subject of enquiry from being a mere collection of observations and theories into being a science. Indeed a science is born when a subject of study becomes sufficiently well known to admit of the logical and orderly arrangement of its details. If this test is admitted, gynæcology as a science is very young, and it might even be maintained that it has not yet reached the scientific stage. As an art it has, of course, reached a very high level.

The first attempts to give an orderly account of the diseases of women in this country seem to have been made during the later third of the 19th century. Thus the third edition of West's lectures, published in 1864, and the third edition of Graily Hewitt's book, published in 1872, both show traces of an arrangement into diseases of the vulva, vagina, uterus and other organs. In 1877 Lawson Tait published a small book with a definite anatomical classification, and the same arrangement was made by Barnes, whose second edition appeared in 1878. From this date until the present time nearly all the books which have dealt with the diseases of women have been arranged, as regards their main divisions, upon the anatomical basis.

The object of this paper is to examine the nature and results of this classification and to find out if it is the best that can be made now, as it doubtless was when it was introduced.

To quote the words of two recognized logicians, Fowler says: "A scientific classification may be defined as a series of divisions, so arranged as best to facilitate the complete and separate study of the several groups which are the results of the divisions, as well as of the entire subject under investigation." And J. S. Mill says: "The

general problem of classification in reference to scientific purposes may be stated as follows: To provide that things shall be thought of in such groups, and those groups in such an order as will best conduce to the remembrance and to the ascertainment of their laws."

Does the anatomical classification now in use "best facilitate" the study of gynæcology? and does it "best conduce to the remembrance and to the ascertainment of its laws?" Fowler says that an artificial system is one which selects some point of difference amongst the objects to be classified, and makes this one point the basis of its classification. "Though of little use, except as a preliminary effort, for the purposes of science, an artificial system possesses one great advantage. As it bases its divisions, where possible, on one property, and that generally something which at once strikes the eye, it is peculiarly easy of application and can be much more easily learnt than a natural system." This accounts, no doubt, for the continued popularity of the anatomical system in gynæcology, which selects one point of difference, namely, place, and forms its main divisions on this one basis. It may have had its use as "a preliminary effort." But unfortunately it is not only an artificial classification, but a bad one of its kind, and it has often been made even worse by faulty application. For a number of conditions which are not diseases peculiar to women are often brought in; as, for instance, the various skin diseases described under the headings "vulva" and "mons veneris." Again, affections of the rectum, bladder and urethra are often included. It is quite right for the gynæcologist to treat them; but why drag them in when trying to give a scientific description of diseases of the female reproductive organs?

Symptoms are often made into diseases; for example, *pruritus*, and various neuroses. Conditions are sometimes put in the wrong divisions. Thus cystocele and rectocele are often called diseases of the vagina, prolapse and retroversion being put amongst diseases of the uterus. Strictly speaking, they are all abnormalities of the pelvic connective-tissue. The above are all avoidable errors in the application of the system of division. But the system itself is responsible for splitting up diseases. Gonorrhœa, for example, is one disease. But in books it is described under several headings, such as vulva, urethra, vagina, cervix, uterus, tubes and ovaries; and facts which should be together in one place are scattered abroad. A further result is that local pathological processes are made into separate diseases with names such as vaginitis, endo-cervicitis, metritis, endometritis, parametritis, perimetritis, salpingitis and ovaritis. These are described each with its symptoms, signs, diagnosis, prognosis and treatment. Most of them never occur as primary conditions. Ovaritis, for example, is always secondary to infective trouble somewhere else; but the word is constantly used as the name of a disease. The same is true of most of the kindred words.

"It is a dull and obtuse mind," said Calvin, "which divides in order to distinguish; but it is a still worse which distinguishes in order to divide." The older gynæcological writers may not have distinguished between ovaritis and salpingitis with the conscious intention of dividing them; but their writings have effectively separated these processes in the minds of students and medical men of the present day.

Nor can the use of anatomical main divisions be said to be successful in practice; for senior students and young graduates constantly remark that, while they can make useful progress in medicine, surgery and midwifery, they are in despair about gynæcology. The subject, however, presents no unique difficulty. It is badly taught simply because writers and teachers persist in using the anatomical arrangement. Interest, intellect and industry are not wanting, the method alone is in fault. How can the student realize the connection between vulvitis and salpingitis when they are treated as distinct diseases separated by hundreds of pages in text-books and by the lapse of weeks in the lecture-room? How can he avoid regarding "ovaritis" as a disease when it is described as one? How can he escape the conclusion that prolapse is a disease of the uterus when it is placed under that heading?

Various other artificial groupings might be tried in attempting to improve upon the anatomical system, but what is required is natural arrangement. Fowler says: "A natural classification aims at classifying objects according to the whole of their resemblances and differences, so far as these are recognized by the science in whose service the classification is made. But amongst these resemblances and differences some *are found to be invariably attended by a number of others,* and consequently these, as the more important, are selected as the characters by which to discriminate the higher divisions of the series, the less important characters being, throughout the whole series, subordinate to the more important."

Now, what are those resemblances between diseases which are to be invariably attended by a number of other resemblances, and which therefore should be selected as the characters by which to discriminate the higher divisions of a classification? The word "cancerous" at once calls to mind a number of resemblances between all cases of cancer; but the term "disease of the uterus" does not suggest any resemblances between diseases of the uterus except that of place. The word "infective" conveys a number of facts concerning all cases of infection; but the word "vagina" tells nothing about any case of vaginal disease except the site of the lesion. In short, the knowledge that a condition affects the broad ligament, the uterus or the ovary conveys much less information than the knowledge that the condition is an injury, a tumour or a malformation. In general terms, the important feature of a disease is not its site, but the way in which it

departs from health, namely, its pathology. The word pathology must not be taken in its narrow sense of morbid anatomy, but must include function as well as structure, morbid processes as well as lesions.

If it is granted that the pathology of a disease is its most important feature, does it not follow that the main divisions of a natural classification of diseases should be based upon pathological resemblances and differences; the minor features, such as the site of lesions, being utilized in later or subdivisions of the classification?

Attempts to bring into use a natural classification of the diseases of women with its main divisions based on pathology have been made, so far as the writer is aware, by four authors in this country—D. Berry Hart, J. W. Ballantyne, W. Blair Bell and himself.

In 1893 Berry Hart read before the Edinburgh Obstetric Society a paper on "The Pathological Classification of Diseases of Women, with a plea for the revision of current views." It appears in the *Transactions* of the Society, vol. xix, and was also published in the second volume of the *Edinburgh Hospital Reports* (1894). He used eleven headings as follows:—

1. Congestive (vascular ruptures included).
2. Hypertrophy.
3. Atrophy.
4. Traumatism.
5. Simple inflammations.
6. Micro-organismal.
7. Herniæ (includes prolapse).
8. New growths.
9. Displacements (inversion only).
10. Developmental errors.
11. Neuroses.

"Simple inflammations," Hart described as "alleged simple non-specific inflammatory conditions?" with a question mark. These he introduced in a perfunctory manner. "Under this heading," he says, "the important question arises as to whether we ever have really inflammation apart from an infective cause, *i.e.*, as the result of mere vasomotor and other vascular changes. I do not believe we have." This was written in 1893, and by this time probably everyone agrees with Hart that we do not have to deal with such "simple inflammations." "Neuroses" should doubtless be regarded as diseases of the nervous system and not of the female reproductive organs.

In 1905, Ballantyne published his *Essentials of Gynæcology*, and his headings were ten in number:—

1. Inflammations and infections.
2. Neoplasms.
3. Displacements.

4. Traumatic states and results.
5. Malformations.
6. Hypertrophic and atrophic states.
7. Extrauterine pregnancy and hæmatocele.
8. Menstrual anomalies.
9. Sterility.
10. Nervous affections.

It is unnatural to put hypertrophies and atrophies together, because they are opposite in kind. Extrauterine pregnancy is midwifery. Menstrual anomalies and sterility are symptoms and nervous affections are disorders of the nervous system, as already mentioned.

In Blair Bell's *Principles of Gynæcology* (1910) the headings are again ten in number:—

I.
1. Congenital derangements of the normal anatomical conditions (malformations).
2. Acquired derangements of the normal anatomical conditions (injuries).
3. Acquired derangements of the normal anatomical conditions (displacements).

II.
4. Disorders of the normal physiological conditions in relation to menstruation.
5. Disorders of the normal physiological conditions in relation to conception.

III. 6. Infective and parasitic diseases of the genital tract.

IV.
7. Retention and effusion cysts of the genital tract.
8. Innocent neoplasms of the genital tract.
9. Malignant neoplasms of the genital tract.

10. Allied morbid conditions.

These fall into four very large groups: for 1, 2 and 3 are "anatomical" conditions; 4 and 5 are "physiological," and 7, 8 and 9 are "tumours."

"Disorders in relation to menstruation," like Ballantyne's "menstrual anomalies," deals with symptoms and not with primary conditions. "Disorders in relation to conception" is midwifery. Various conditions which are not primary disorders of the female reproductive organs are included under "allied morbid conditions." Thus Ballantyne's and Blair Bell's arrangements are not quite faithful to their main basis of division, and they both poach on obstetric and other ground. Apart from his group of "neuroses," Hart's plan is free from these defects, but it suffers, with the others, from the fact that the student cannot easily keep in mind so many as ten groups.

For some years the writer has been using six main divisions, both in clinical teaching and in his systematic work.* They were

* *Manual of Diseases of Women.* Wm. Green & Sons, 1910.

suggested by the arrangement of specimens introduced by Professor Lorrain Smith into the Pathological Museum of the University of Manchester, and thus have the sanction of professional pathologists.

They are:—

I. Developmental errors { (*a*) congenital. (*b*) at puberty.
II. Vascular changes.
III. Mechanical conditions.
IV. Results of infection.
V. Progressive conditions { overgrowths. cysts. new growths.
VI. Retrogressive conditions.

I. "Developmental errors" must, for gynæcological purposes, contain two sub-groups. For the reproductive organs have two phases of development—one embryonic and fœtal, the other occupying the years immediately before and after puberty.

II. "Vascular changes" includes active and passive hyperæmia as recognized at first by symptoms, but, later, by hypertrophy and fibrosis respectively. This group also includes varicosity of the pelvic veins and hæmorrhage into the pelvic organs, connective-tissue and peritoneal cavity.

III. "Mechanical lesions" is a large and obvious group containing injuries, displacements and herniæ.

IV. "Results of infection" is a main division which should be subdivided according to the causal organism. In this group the few cases of primary pelvic parasitic disease can be included without gross impropriety.

V. "Progressive conditions" includes overgrowths, cysts and new growths. Perhaps this group should be divided, but it is hard to draw the line between hypertrophy and adenoma of the endometrium or between innocent and malignant new growths.

VI. "Retrogressive conditions" occur mainly in connection with the menopause, but the reproductive organs also share in general senile decay. Further, there are errors in the retrogressive changes which are characteristic of normal menstruation, ovulation and involution.

The writer has found that the use of these main groups has certain advantages. The division is logical, and is based upon the most important resemblances and differences between morbid conditions, namely, the pathological. It is familiar to students of medicine, and the headings are so few that they are easily remembered. If the student is able to place a case in one of these groups he has made a definite step towards a complete diagnosis and has gained some useful information about the patient. But it is a division of conditions, of course, not of patients, for one woman may have two or more morbid conditions at the same time. Such a division has the further advantage that it does not magnify symptoms and pathological processes into separate diseases. Nor does it lead to confusion

between primary conditions affecting the reproductive organs and general diseases, such as anæmia, phthisis, rickets and myxœdema which often produce gynæcological symptoms. Such symptoms of general disease may well, like diseases of the female bladder, urethra and rectum, be mentioned by the gynæcologist in teaching; but it is better that they should be kept out of any classification of the diseases of the female reproductive organs which aims at being scientific and logical.

Those who have written text-books and arranged courses of lectures according to the anatomical plan can hardly be expected to approve of the changes now advocated, though the use of pathological main groups saves much space and prevents much repetition. Again, students taught to use a pathological arrangement, unless well-informed and of active mind, might fail to please examiners of the anatomical age. Thus mental inertia and the fear of the examiner tend to perpetrate the anatomical grouping. But it cannot last much longer. Indeed the writer hopes to see the day when it will not be used in any course of lectures delivered in this country, nor in any book which holds a place on the British market.

Cause and Treatment of Procidentia Uteri as it occurs in the Parous Woman.

By E. Hastings Tweedy, F.R.C.P.I., etc.

Over a quarter of a century has passed since Schultze laid the foundation of modern gynæcology by demonstrating the normal position of the uterus. Had he confined himself to this splendid achievement his work would have been without alloy. Unfortunately, he permitted himself to speculate as to why the uterus rests in this anteflexed and anteverted position. His hypotheses were so plausibly expressed and so convincingly urged that they obtained ready and wide acceptance, and even now are held by many eminent gynæcologists as cardinal articles of faith.

His hypothesis suggests that the uterus does not need the support of ligament, but lies snugly wedged between the opposed pressures from the abdomen and its contents above, and the levatores acting from below; one tending to drive the body of the uterus on to the emptied bladder, which in its turn rests on the anterior wall of the vagina, whilst the other, by reason of their fixed attachment to the pubes and their attachment to the posterior vaginal wall, suffice to close this canal and prevent the descent of the bladder. The acceptance of this idea of mutual support had one inevitable result, namely, the attempt to cure prolapse by fixing the uterus in anteversion and repairing the torn perineal muscles. The resources of gynæcology offered many different means of effecting these results, but in spite of the perfection of these operations, thousands of unfortunate patients are living witnesses of the uselessness of this treatment and the falsity of the hypothesis on which it was founded.

In the light of present day knowledge it is hard to understand how we could have been so far led astray in our anatomical data. Were the uterus a rigid, board-like substance it possibly could be held in position in the manner suggested by Schultze, but it is not rigid, and the force which presses the fundus down will also operate on the cervix. The upper edge of the levator muscle is situate an inch below the fixation point of the cervix,—a situation which precludes the cervical position from being dependent on the muscle. Were it otherwise the cervix would be driven downward to its upper border in response to abdominal pressure, and such a descent would cause the body of the uterus to slide from its place as wet soap slips from the enclosing hand. This displacement is easily shown by placing a bullet forceps on the normal uterus and pulling it downwards. The uterus is thus made vertical, and the first stage towards prolapse is

obtained. Abdominal pressure then, if maintained, brings about retroflexion, as the round ligaments cannot support a continuous strain. These ligaments, though all important in preventing the backward displacement which tends to occur whenever the bladder fills, can only operate when the cervix is normally elevated. In the presence of the descent of the latter they are powerless to prevent a backward displacement. The key then to the position must be sought by finding the structures concerned in the fixation of the cervix, and our first enquiries will naturally be directed towards the so-called uterine ligaments. For practical purposes these may be considered to consist of three pairs—the sacro-uterine behind, the broad ligaments on each side, and the round ligaments in front. To Schultze these ligaments presented as great a puzzle as they have presented to more recent observers. To him they appeared, as they appear to us, flaccid structures, never felt or seen in tension under normal conditions. The unstriped muscle fibres they contained caused him to conclude that they were prone to periodic contractions, that these contractions were coincident with the emptying of the bladder, and that these sacro-uterine ligaments, by lifting the cervix upwards and backwards, and the round ligaments, by forcing the fundus forward, restored the temporarily displaced uterus once more to the normal.

A closer study of these ligaments will show the inherent improbability of so fantastic an idea.

The round ligaments justify their title. They consist of rolled muscular fibre derived from the superficial layer of the uterus. Their chief use is in connection with pregnancy, labour, and the puerperium. During this period they are hypertrophied and become very important structures, sharing in all the contractions of the uterus. Though thin and flaccid in the unimpregnated state, they have a reserve use in the manner already indicated. The pain that is sometimes felt in the scar left after an Alexander Adams operation, particularly experienced during the menstrual period, suggests that they share with the uterus in the contractions of menstruation.

The broad ligaments are double folds of peritoneum, which enclose blood-vessels and nerves placed in two separate planes. Around these vessels are massed a certain amount of fibrous connective-tissue arranged there as a framework to the vessels and not as a support to the uterus. These ligaments can be entirely severed without causing any uterine displacement. The sacro-uterine ligaments have structures similar to that of the broad ligaments, but, according to anatomical authorities, are characterized by the possession of fairly important bundles of unstriped muscular fibres derived from the uterine wall. No one has ever seen or demonstrated the action of these muscles; neither during operation nor during micturition have they been observed to contract, and whatever be

their use it certainly is not that suggested by Schultze. They, too, can be severed entirely, and yet the position of the uterus will remain unaffected, a statement that is also true for all six ligaments.

Immediately below the peritoneum there stretches across the pelvic inlet a very remarkable fibro-muscular diaphragm, which has until recently received scant notice from anatomists. This diaphragm is deficient in many places to permit of the passage of diverse structures, but below the bases of the broad and sacro-uterine ligaments it is gathered into fibrous, muscular and elastic bands of great strength and significance. It is only in the most recent and authoritative works that the subperitoneal fascia is considered as constituting an important portion of the pelvic fascia. To Mackenrodt we are indebted for first drawing attention to these fibro-muscular bundles which he termed the " ligamentum latum transversalis colli." This structure passes below the base of the broad ligament and is firmly inserted into the upper cervical portion of the uterus, its fibres closely interlacing with that portion of the fascia which lies below the base of the sacro-uterine ligaments. Mackenrodt showed that the stability of the uterus entirely depends on these structures; that their severance results in immediate dipping and displacement of the cervix; whilst, on the other hand, when they remain intact the uterus does not descend, despite the severance of all its so-called ligaments. Every operator on the abdomen has now had ample opportunity of verifying the truth of these observations, and is familiar with the tough, gristle-like structure that is divided as a last step in the removal of a cancerous uterus by Wertheim's method. It is to this structure then that we must direct our attention if we are to attain any success in the permanent cure of procidentia uteri.

The salient features of Alexandroff's operation were first brought to my notice in the year 1906, and in that year I had the honour to read before this Section of the Academy a paper based on three operations which had been performed by me according to the principles laid down by him.

The details of his procedure were unknown to me, and this I fully explained at the time. Further experience has shown imperfections in my early technique, and these were particularly in evidence in the first operation, with the result that a relapse finally occurred. The patient was an exaggerated example of prolapse, and I had subsequently to fit her with a ring pessary. Since leaving the Rotunda I have ascertained that she has undergone the operation of hysterectomy. She, so far as I know, represents my one and only failure.

For the purposes of the present paper, I took the liberty of addressing a personal letter to every gynæcologist holding a public appointment in Dublin. I asked them for an expression of their views on the following two points:—First, as to the most important lesions to which prolapse owes its origin; and, secondly, the operative

procedures recommended for its cure. I desire to take this opportunity of conveying my thanks to those who so graciously and promptly responded to my queries.

The replies I received well demonstrate the state of present day knowledge, as every shade of opinion is represented in these letters. Amongst the many divergent views it is impossible that all can be right, and an error in ætiology must inevitably lead to error in treatment. That these errors are made is abundantly evident in the thousands of living failures after surgical interference.

The advocate of a new operation assumes a very grave responsibility, and I only ask for consideration similar to that you would afford to the suggestions of others, accepting the operation only if it stands the test of criticism in respect to theoretical perfection and practical utility.

The majority of those who have replied to my queries name stretching of the ligaments as the chief lesion in the causation of prolapse; but there is no agreement as to the relative importance of the several sets of ligaments. The sacro-uterine ones are those most constantly mentioned, but defect of the round and of the broad ligaments have each their adherents. Some have gone into particulars as to the cause of their stretching, and have explained that it is due to (*a*) uterine enlargement and weight, and (*b*) undue manipulations of the uterus during the puerperium. Relaxation of the pelvic floor is assigned as a cause by many, and indeed almost all who have replied suggest relaxed perinæum either as the chief or as a contributory cause. Tearing of the pelvic fascia—by which is meant the portion which covers the inner aspect of the levators—is suggested as a cause by two writers. One of these refer to a deficiency in Mackenrodt's ligament, but both are careful to add that prolapse may arise independently of these lesions. One writer mentions a relaxed abdominal wall as an important predisposing condition. This, I take it, to be a revival of Matthew Duncan's view that the uterus is sustained by a negative atmospheric pressure, which pressure is lost in the absence of a normal abdominal tonicity.

In comparing the assigned causes of prolapse with the treatments suggested there is an entire lack of relation in the majority of instances between one and the other, and the following operative procedures have been variously recommended:—

1. Alexander's operation with colporrhaphy.
2. Shortening the round ligaments by other devices.
3. Ventro or vaginal suspension with perineal repair.
4. Ventro-fixation or uterine fixation to the abdominal aponeurosis with salpingectomy to prevent further pregnancy.
5. Vaginal and perineal repair with no further operation.
6. Hysterectomy.

7. Two writers say that in some cases the ligamentum latum transversalis colli may be stitched in front of the cervix.

8. Two suggest interposition of the uterus as an adjunct to vaginal repair.

9. One of my correspondents answers my letter by forwarding me a reprint from a paper published by him in the *Journal of Surgery, Gynæcology and Obstetrics*, August 1911, entitled "A New Operation for the Vaginal Shortening of the Utero-Sacral Ligaments." He writes: "The purpose of this paper is to describe my methods of shortening the utero-sacral ligament," which procedure he combines with some one or all of the following: curettage, supra-vaginal amputation of the cervix, interposition of the uterus (Wertheim's operation), colpo-perinæorrhaphy. Further on we read: "The association of these two procedures (shortening of the utero-sacral ligaments and interposition of the body of the uterus between the bladder and the anterior wall) is of course by no means new, as Wertheim habitually associates the two when necessary. His method of shortening the utero-sacral ligament is, however, quite different from mine." "In general terms the operation consists in exposing the utero-sacral ligaments at their insertion into the uterus, in cutting them off the uterus," "without necessarily opening into the peritoneal cavity," "and in bringing them round in front of and below the cervix."

It will be seen from these quotations that the claim to novelty falls under two heads—(1) the extra-peritoneal severance of the sacro-uterine ligaments from the uterine wall; (2) their advancement to the anterior portion of the cervix, slinging the latter upward and backward.

It has already been shown that the sacro-uterine ligaments consist essentially of peritoneal folds enclosing some bundles of unstriped muscle and fibrous tissue and that they are directly contiguous with the fascial diaphragm which stretches across the pelvic inlet. It is not possible, consequently, to divide these ligaments completely without opening the peritoneal cavity, and if the peritoneum be not separated from the underlying connective-tissue structures these latter will be found to be directly continuous at their insertion into the cervix with the ligamentum latum transversalis colli of Mackenrodt. It would seem therefore that the structures brought in front of the cervix in the operative procedure above described are not the sacro-uterine ligaments as believed, but fibres of that fascial diaphragm which covers the pelvic inlet.

This is the essential feature of Alexandroff's operation, as those who have done me the honour to recall my communication will remember. Lest, however, it has escaped the memory of some, I shall briefly recapitulate the manner in which I perform it:—
1. Anterior colporrhaphy, causing free exposure of the prolapsed

bladder. 2. Elevation of the bladder from the cervix until the peritoneal fold is reached. 3. Free lateral splitting of the cervix, with wedge-shaped amputation of its lips to an extent sufficient to reduce it to its normal length. 4. Closure of each wedge with catgut ligatures which do not include the vaginal mucous membrane, and which are left sufficiently long to provide tractors for the cervix. 5. Free opening of the peritoneum and dislocation of the uterine fundus through this hole. 6. The placing of two catgut or silk sutures in the following manner: (*a*) through the mucous membrane of the vagina as close to the urethral orifice as the raw surface permits; (*b*) through one lateral flap of the peritoneum, which will be found lying on the posterior wall of the dislocated uterus in the neighbourhood of its cervical portion; (*c*) through the anterior wall of the uterus, midway between the tubes, and about half an inch below them; (*d*) through the peritoneum at the other side; (*f*) through the corresponding vaginal mucous membrane. The second suture follows the direction of the first, but is placed half an inch beneath it. These sutures are held in a catch forceps, but not at present tied. The uterus is returned into the abdomen and the peritoneal rent completely closed with fine catgut, a procedure made easy by traction on the cervix. Mackenrodt's ligaments are now easily exposed by wiping the mucous membrane from the cervix, the latter being fixed to facilitate the procedure. Silk ligatures are passed at each side of the cervix through these ligaments, and are placed sufficiently far outward to take up all slack when they are drawn together; they are then tied in front of the cervix in the neighbourhood of the internal os, and this structure is pierced to secure the ligaments in their forward positions. It is well to add further catgut sutures to make the permanence of the union more certain. If it be desired to bring the ligament in front of the cervix in its entirety there should be a free severance of its fibres at its cervical insertion, and if such severance is deemed necessary the portion of the fascia least likely to cause hæmorrhage will be that which lies beneath the sacro-uterine ligaments. Its advancement to the front of the cervix causes an immediate tightening of its lateral part. The vaginal mucous membrane is now closed so as to cover the raw surfaces of the cervix and to complete the anterior colporrhaphy. The uterine sutures are tied and a modified Lawson-Tait's perineorrhaphy brings the operation to an end.

The beginner may consider that he has not gained sufficient elevation of the cervix after full attention to these details, but he must remember that it is not natural that the cervix should be markedly elevated, and when he examines the patient at the end of three weeks he will be struck with the normal condition of the parts.

The cystocele is permanently cured, the cervix has no tendency to dip, and should pregnancy occur normal delivery may be looked

forward to. We have had no personal record of trouble during labour in our entire series of vaginal suspensions, and at least eight patients on whom the operation was performed have delivered themselves naturally.

Now, in comparison with this, let me contrast the methods that have been suggested. Reasons have already been given which demonstrate the futility of the Alexander-Adams's operation for the cure of prolapse, and the methods devised for suspension of the uterus by means of the round ligaments are all open to the disadvantages that these latter are liable to stretch under continuous strain, and this stretching will be attended with pain.

The failure of ventro-suspension is a common experience amongst the leading gynæcologists of the world, and fixation of the uterus to the rectal aponeurosis, though possibly effective in preventing recurrence of prolapse, requires sterilization of the patient to ensure against pregnancy, and for this reason must be condemned.

The combination of curettage and amputation of the cervix with vaginal and perineal repair, once largely adopted for the cure of prolapse, has now rightly fallen into disfavour. If the patient can lead an indolent life such measures may at times be productive of lasting relief, but in the case of the hard-working women the retroverted uterus will bore its way outward despite the repaired levator; that this sinking results from a positive pressure exerted on it by the abdominal contents is proved because of the fact that it comes down in a retroverted position. Had atmospheric conditions any part in the support of the uterus we would not find this backward displacement associated with prolapse.

Hysterectomy is the operation of despair, and has not the merit of preventing in every case the recurrence of intestinal hernia. If cicatrization of the raw surface left after hysterectomy suffices to make taut Mackenrodt's ligament there will be no recurrence of prolapse, but if the contracting tissues fail to accomplish this a hernia follows and the last stage is worse than the first.

Interposition of the uterus was first brought to our notice by the writings of Freund. The operation was modified by Schauta, and is now practised by Wertheim. The originator of the operation intended that the markedly displaced uterus should act as a natural pessary by making its enlarged fundal pole fill the vagina. In performing it the vaginal mucous membrane is split from the cervix to the urethra. The edges at each side of this cut are undermined so as to free the flaps from the underlying bladder. The bladder is pushed up till the peritoneum is reached, and the latter is then freely opened to permit the uterus to be brought out into the vagina in such a manner that its fundal end approaches the urethra close to the pubes. The peritoneum is now stitched closely to the back wall of the uterus near the cervix. The vaginal skin flaps are pulled over

the protruding uterus and sutured if possible. If the flaps cannot be approximated they are stitched to the side of the uterus, and the body of the latter is left exposed and protruding into the vagina. A subsequent pregnancy after this operation would be a disaster, and it become imperative therefore to resect the tubes in cases in which the menopause has not become established. Even when the woman is past the child-bearing period the deformity of the vagina induced by the protruding uterus and the difficulty in the drainage of uterine discharges are sufficiently potent reasons for condemning this operation, and when we hear that Wertheim now in addition shortens the sacro-uterine ligaments we have proof that it is not to be relied on unaided as a cure for prolapse.

Finally, there is the so-called extra-peritoneal shortening of the sacro-uterine ligaments. This seems to me, for the reason I have already given, to be one of the many modifications by which the principles of Alexandroff's operation may be carried out. I have myself performed it, and am satisfied that it is quite effective in making taut the ligamentum latum transversalis colli and bringing it in front of the cervix.

Combined Pregnancy.

By Reginald H. Lucy, M.B., C.M. (Edin.), F.R.C.S. (Eng.).

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In his book on " Extra-uterine Pregnancy " (published in London in 1876) Parry designates the occurrence of extra- with intra-uterine pregnancy in the same subject as " combined pregnancy." Although comparatively rare, it is highly important that the general practitioner should be aware of the possibility of such a combination of pregnancy, both inside and outside the uterine cavity at one and the same time. Strictly speaking, the term " combined pregnancy " should be limited to that condition in which fœtuses of the same age co-exist, and should not include instances of intra-uterine gestation occurring in subjects carrying the remains of an old extra-uterine fœtation. Unless the fœtuses are of the same *age*, strictly speaking, the case does not fall within the definition of " combined pregnancy." Unfortunately the *sex* of the fœtuses is not mentioned in the majority of the cases recorded.

Respecting the usual *termination* of a combined pregnancy, I believe in the majority of instances the gravid Fallopian tube first ruptures, and if not immediately diagnosed and promptly treated, shock causes the uterus to empty its contents. That such a sequel does not always follow is shown by Mond,[1] where the rupture of a gravid tube was promptly met by abdominal section, and the intra-uterine pregnancy went on to term and ended normally.

Again, abdominal section for internal hæmorrhage has not always been followed by immediate abortion, but the latter has come on in a few days' time (H. P. Perkins,[2] 6th day; Walther,[3] third day). It is entirely a question of the time allowed to elapse before the dual condition is recognized and prompt measures taken. If dealt with immediately abortion need not follow the abdominal section as in Mond's case [1] (*supra cit.*). Neither may the combined pregnancy terminate before full term, but go on simultaneously, as recorded by Gutzwiller [4] (laparotomy and hysterectomy) and Ludwig [5] (Chrobak's clinic) per *vias naturales* and laparotomy.

Other *factors determining the course* of the combined pregnancy are :—

1. The time that has elapsed since conception took place; in the majority of instances termination of one or both pregnancies takes place between the 3rd and 4th months. Earlier and later instances are known, *e.g.*, John Phillips [6] quotes cases occurring in the 7th, 8th and 10th weeks of pregnancy.

2. The portion of the Fallopian tube in which implantation has taken place, *i.e.*, the uterine end, the middle portion or the outer third—(*a*) if in the inner third, rupture in this position would almost invariably cause simultaneous uterine contractions; (*b*) if in the middle third, the rupture might take place into the layers of the broad ligament, and forming a hæmatocele there, might or might not cause the uterus to contract, according to the volume and rapidity of hæmatocele formation; (*c*) if in the outer third, a tubal abortion would follow, as in cases recorded by J. Phillips,[6] Mond [1] and Walther,[3] and if dealt with promptly would seem least likely of the above varieties of tubal gestation to cause uterine contractions.

3. The time allowed to be lost before adequate treatment is adopted, with which consideration is bound up the suddenness and the volume of blood effused into the peritoneal cavity.

4. The question of traumatism, chiefly from severe bodily exertion (J. Phillips), blow on the abdomen (Lucy) or falls.

In studying details of the cases recorded, the *mortality* appears to be in direct proportion to the (*a*) recognition of the pelvic catastrophe, and (*b*) the seat of the tubal gestation. The most favourable condition is the combination of a tubal mole and intra-uterine pregnancy, while the most fatal is the combination of an isthmic tubal gestation, rupturing after 6—10 weeks of amenorrhœa, and intra-uterine pregnancy.

In 1902 John Phillips computed the total mortality following all modes of treatment at 54 per cent. Reduction in such an alarming death-rate can only be secured by early recognition, prompt and rapid operation and strict asepsis. I should like to insist also that the operator should in all cases go to the patient—where she is stricken down there should she be operated upon,—however unpromising her surroundings and the hygienic conditions. It robs a woman of her last slender chance of life, already at death's door from internal hæmorrhage, to move her any distance into what may be to the operator more convenient surroundings. Time, and not place, is the paramount consideration for the successful issue of any given case.

I think the following case worthy of record, if only again to remind medical practitioners that such an untoward combination of circumstances may occur as an ectopic gestation accompanying an intra-uterine pregnancy. Although the birth of a fœtus may be the first visible termination of a pregnancy, still at the same time, or even earlier in the case, grave and puzzling signs and symptoms may appear. To be forewarned we all know is to be forearmed, but I must confess that until I was actually confronted with an instance of a woman who had recently given birth to a fœtus at or about the 4th month of pregnancy, and who also presented all the classical symptoms and signs of internal abdominal hæmorrhage, I did not

know that " combined pregnancy " was possible. This was the only case of the kind I had met with in nearly thirty years of professional life, and it made a very profound impression on me. Nor are even modern text-books eloquent of such happenings, and the literature thereon is much scattered. Now we know that such a conjunction is not only possible, but, as shown by the literature on the subject, of more common occurrence than one would suppose. It behoves the medical attendant dealing with a miscarriage which presents any unusual symptoms to recall the possibility of a co-existing ectopic gestation.

L.S., æt. 25, married; mother of two children, born May 1906 and Nov. 1907 normally at full term.

On Nov. 21 1908 she and her husband struggled for the possession of a poker, but after that she went out marketing, and retired to rest apparently quite well. During the night she rose in order to micturate, and was seized with severe abdominal pain at 4 a.m., when she " felt something slip down."

At 11 a.m. Nov. 22 she felt a sudden sharp pain on the right side referred to the right iliac fossa; soon afterwards she became faint, and when seen by her usual medical attendant was in a state of extreme collapse—pulseless and cold.

She remained in this state for several hours, when there was a partial rally which was maintained until the afternoon of Nov. 23, when she again became collapsed, and at 7 p.m. uterine pains came on and she was delivered of a four months' male fœtus, but the placenta did not follow.

The abdomen became distended, her temperature rose, and when seen mid-day on Nov. 24 by a neighbouring practitioner was thought by her medical attendant to be suffering from " abdominal obstruction." The consultant found her very pallid with a small rapid pulse, the abdomen distended and in great pain. There was a hard, ill-defined swelling occupying the right iliac fossa, reaching to the middle line and almost up to the umbilicus. He thought that she had had internal hæmorrhage, and insisted that her only chance, and that a small one, lay in her removal to a hospital for immediate operation, because her surroundings entirely precluded the possibility of doing anything where she was.

She was accordingly removed by road to a neighbouring hospital, where I saw her on the evening of Nov. 24.

On opening the abdomen by median incision fluid blood and clots welled up; the right tube was groped for and brought up to the surface, disclosing a large rent from which protruded an umbilical cord attached to a four months old male fœtus, free amongst the intestines.

I regret to say that, in spite of all precautions against shock and

by rapid operation, she died on the table. The opportunity was taken to open the uterus, where we found a firmly-attached placenta. The corpus luteum in the right ovary was of more recent date than any to be found in the left ovary.

My previous remarks on the necessity of early recognition and prompt treatment on the spot are borne out by the above history. Apparently the gravid tube leaked at 4 a.m., followed seven hours later by a massive hæmorrhage—causing extreme collapse and the onset of uterine contractions—resulting in the birth of one fœtus per *vias naturales* eight hours later; but operation was not undertaken until 23 hours afterwards, or 62 hours after the first signs of intra-abdominal hæmorrhage.

Between the years 1876 and 1898 only 32 cases of the above condition were on record, but in 1905 Weibel brought the number of instances up to 119, probably owing to the attention directed to the subject by numerous observers subsequent to 1898.

I append a table showing the number of cases recorded:—

Year	Observer	Cases	Published
1876	Parry, Dr. J. S.	22	"Extra-uterine Pregnancy," 1876.
1882	B. B. Browne	26	*Amer. Gynæc. Society* (paper).
1898	Strauss	32	Quoted by Kelly and Noble, vol. ii. 1908, p. 164.
1900	Mond	21	*Münch. med. Woch.*, Sept. 12 1900, p. 1199.
1902	John Phillips	28	*Lancet*, Oct. 25 1902, p. 1122.
1905	Weibel	119	*Monatss. f. Geburts. u. Gyn.*, Bd. xxii, Ht. 6. Abstract in this Journal vol. ix, p. 492.

Since Weibel's paper, already referred to, many cases of combined pregnancy have been recorded in this JOURNAL. Cases by Neugebauer and Gobiet and a bibliography up to 1905 will be found in vol. ix, pp. 492—501. An interesting case of Fleurent's is abstracted (vol. x, p. 646), where the patient aborted three months after operation for an extra-uterine pregnancy. The fœtus was of five months' development and the two pregnancies were calculated to be of the same age. Dr. Donald, of Manchester, records another (vol. xi, p. 365) in which the extra-uterine fœtus was removed eight weeks after the birth of a seven months' intra-uterine living child. The extra-uterine fœtus measured 13 ins., and weighed 2 lbs. 13 oz., and had apparently died when the intra-uterine fœtus was born.

An abstract of an important monograph by Neugebauer is given in vol. xiii, p. 52 and perhaps the most remarkable case of all is one recorded by Miller and abstracted in vol. xv, p. 126, in which after the birth of the first child a second and living child was removed by abdominal section from an extra-uterine sac on the right side. Another case of special interest is Bichat and Marchel's (vol. xvii, p. 59), where a tubal gestation of about two months was removed by

abdominal section and the uterine pregnancy went to term, the patient being delivered of male twins 6½ months later. An original case is recorded by Macfarlane (vol. xix, p. 331), in which the uterine pregnancy continued after the removal of an early extra-uterine pregnancy. Two cases of ovarian pregnancy combined with intra-uterine are to be found (vol. xiv, p. 149, and xvi, p. 407), but it is doubtful whether these ought to be put into the same category with the others.

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SELECT CLINICAL REPORTS.

(Under this heading are recorded, singly or in groups, cases to which a special interest attaches either from their unusual character or from being, in a special sense, typical examples of their class.)

A Case of Solid Teratoma of the Ovary in which the Patient is Free from Recurrence Six Years after Operation and Bore a Child Three Years after the Removal of the Tumour.

By Herbert Williamson, M.A., M.B., F.R.C.P.

In the interesting paper on "A Multilocular Ovarian Cyst containing Teratomatous, Sarcomatous and Papillomatous Elements," published in this Journal in November 1911 by Drs. Matthew J. Stewart and Clara Eglington the statement is made that "solid ovarian teratomata are all clinically malignant." In the classification of ovarian teratomata suggested by them the solid ovarian teratomata are therefore placed under the heading "intrinsically malignant." A study of the cases recorded up to the present time justifies such a conclusion. In 1907 I collected sixteen cases of solid teratomata of the ovary, and from a study of these cases drew the following conclusions:—

"Of the sixteen patients twelve died within a year of the onset of symptoms. Ewald's patient died one year and nine months after operation; Falk's 2½ years after operation; Kramer's patient was alive and free from recurrence one year after operation; and in the second of the two cases I have just recorded, the patient is in perfect health ten months after the removal of the growth. Out of the sixteen tumours, therefore, evidence of their malignant nature is clearly established in fourteen; in the remaining two the patients have not been under observation long enough for a positive opinion to be given. Even should they remain free from recurrence, we have no right to classify these growths as innocent, for we know that occasionally both carcinoma and sarcoma are cured by operation."[1]

Since the publication of that paper I have been unable to find a record of any patient alive three years after operation, but I now relate a case which proves that the opinion hitherto held must be revised, and as the case is, I believe, unique, I shall describe it in full:—

1. *St. Bartholomew's Hospital Reports*, vol. xlii, p. 131.

N.G., a school teacher, 23 years of age, was seen in the out-patient room on January 10, 1906. The patient was unmarried.

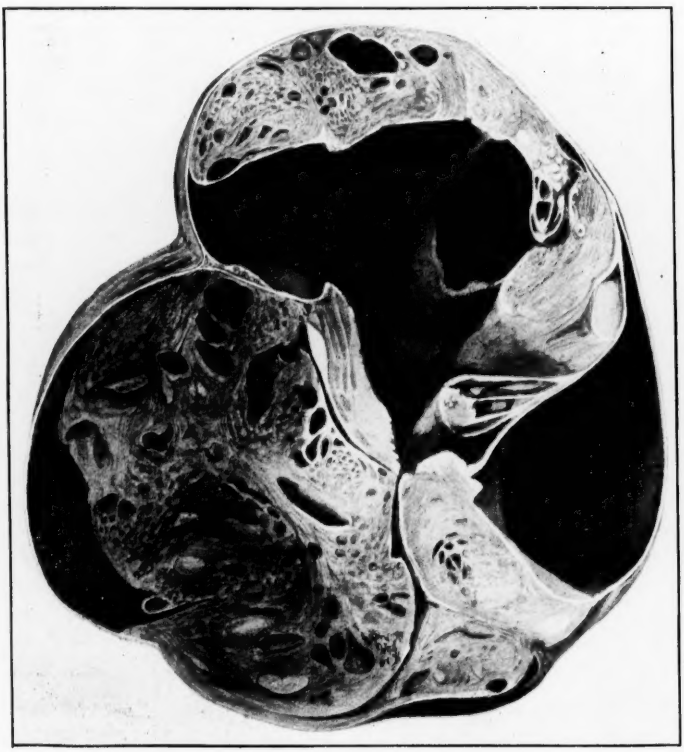
Menstruation commenced at the age of 15 years, but had never been regular; the intervals between the periods had varied from 28 to 42 days; their duration was three or four days, and the loss was scanty. Pain of a dull aching character was felt in the sacrum and down the legs seven days before the commencement of the flow, and persisted until its cessation. The date of the last period was January 1—4, 1906.

In January 1905 the patient noticed an increase in the size of the abdomen, and in August of the same year detected an abdominal tumour, which had since been growing gradually larger. For ten days she had been conscious of pain in the lower abdomen, more marked on the left side than on the right; she described the pain as dragging in character, and stated that it was always worse when she walked, and easier when she lay down. Beyond this she had suffered no discomfort from the presence of the tumour.

The following note was made in the out-patient room:—The patient is a healthy-looking girl, of fair complexion; anæmic, but not markedly so. The breasts are well-developed; they show no signs of activity, and no secretion can be expressed. The abdomen is distended by a tumour which rises out of the pelvis, and at its highest point almost touches the costal margin; it lies more to the right than to the left. For the most part the swelling is firm, as though of solid consistence, but at one or two spots is elastic; its surface is nodular. The percussion note over the tumour is dull, over the rest of the abdomen resonant, and over both flanks hyper-resonant. The vagina admits two fingers; the cervix is low down and far back in the hollow of the sacrum. A smooth, rounded, elastic swelling rests on the pelvic brim. The body of the uterus cannot be identified, but appears to lie behind the tumour. The uterine sound passes with its concavity forward for a distance of 2½ ins. behind and to the left of the tumour. The diagnosis of an ovarian tumour was made, and the patient admitted into Martha Ward under the care of Sir Francis Champneys.

On January 17 abdominal section was performed. The abdomen was opened by an incision 8 inches in length, and the tumour found to be connected with the left broad ligament. It was brought out through the wound, and its broad pedicle secured with interlocking sutures. The right ovary was examined and pronounced healthy. The wound was closed with fishing-gut stitches. The patient made an uninterrupted recovery, and left the Hospital on February 14 1906.

On January 30 1912 the patient wrote:—"It is now just six years since I was in St. Bartholomew's Hospital, and I am very pleased and thankful to say I have not had a day's illness since. After I had



Solid Teratoma of the Ovary removed from N.G.

(St. Bartholomew's Hospital Museum, No. 2929D.)

got quite strong I went back to school, taught for almost two years, and then got married. I have now been married just over four years, and have got one little girl—a bonny, healthy little thing, just three years old. I don't think I have ever been so free from aches and pains as during the last six years; in fact I have been thoroughly well and healthy."

Description of the Parts removed.

The tumour weighs 7 lbs.; its length is 12 inches, transverse diameter 10 inches, and circumference at its greatest diameter 25 inches. The general outline is rounded or oval; it presents on the surface a number of bosses, some of which are solid, others cystic and semi-translucent. The capsule is dense, white and glistening; ramifying upon it are a number of large veins. Adherent to its surface at one spot is a piece of omentum, which has been ligatured and removed. Though for the most part the tumour is solid, cystic-translucent areas can be seen beneath the capsule. The Fallopian tube, together with the broad ligament, has been removed with the tumour; the two layers of peritoneum constituting the ligament are continued over the surface of the growth and cannot be separated from the capsule. The fimbria ovarica, stretched and elongated, is attached to the surface, and in its neighbourhood is a triangular area devoid of serous covering, which marks the site of the pedicle: at this spot many large vessels enter the tumour.

On section the growth is found to be partly cystic and partly solid. It consists of three main lobes; the one which lies below and to the left is composed chiefly of solid tissue, and presents a honeycombed appearance. The groundwork is formed of dense, white fibrous tissue, and embedded in this are: (i) many casts with serous and mucinoid contents; (ii) areas of cartilage; (iii) spicules of bone. The second lobe lies to the right and above; around its periphery are masses of solid growth similar to that in the lobe just described, but its centre is occupied by an irregular cystic cavity, which has apparently been formed as the result of tissue degeneration; the walls of the cavity are composed of white, necrotic-looking tissues. This cavity contained dirty-brown grumous fluid. The third lobe, below and to the left, contains in its lower portion tissues similar in character to those of the other lobes, but its upper part is occupied by a large smooth-wall cyst filled with clear serous fluid.

Microscopical Examination.

I propose to enumerate the structures found, and, without entering into minute histological details, to describe the characters of some of them. It will be most convenient to consider first tissues derived from the mesoblast. Mesoblastic structures are present in great variety. We find not only fully differentiated tissues, but also

elements of an embryonic type in the form of collections of round and spindle-cells with large nuclei, branching cell processes, and scanty intercellular stroma, grouped around blood-spaces with ill-developed walls. Amongst the tissues which have reached a state of full differentiation and mature development we find many varieties; fibrous tissue bundles run in all directions; islands of hyaline cartilage, spicules of bone, areas of adipose tissue, bands of unstriped muscle-fibres are scattered through the growth.

The blood supply is not a rich one. The vascular system is represented by tubular spaces lined by flattened endothelial cells; around these spaces fibrous and other connective-tissues are concentrically arranged; muscle-fibres are rarely found in the walls of the vessels.

Growing side by side are tissues of very different types. On the one hand, cells of an embryonic character capable, possibly, of development into highly specialized structures, but in form and arrangement indistinguishable from sarcoma-cells; on the other hand, cells which have apparently reached the limit of their growth and development, and in places show retrograde changes. This is a point of importance, for the question as to whether solid teratomata are to be regarded as malignant growths *per se*, or whether they are malignant only if they contain sarcoma or carcinoma cells, is as yet unsettled. The presence of this undifferentiated tissue, of whose properties and of whose type of mitosis we are ignorant, must influence us materially in our study of this important question.

We pass from the connective-tissues to consider for a few moments the cysts which are scattered throughout the whole substance of the tumour. A striking feature, not of this tumour only, but of other embryomata which have been described, is a marked tendency towards cyst formation. In fact, the terms "solid" and "cystic" as applied to these growths are relative only, and when we speak of "solid teratomata" we must remember that such growths always contain cystic spaces.

In this particular tumour the cysts are of varying size; one contained two pints of clear serous fluid, many are barely visible to the naked eye. The characters of the epithelium which lines them and of the fluids which occupy their cavities are extremely diverse; in this respect teratomata offer a marked contrast to cystic ovarian adenomata. Some cysts are lined by a single layer of tall columnar cells, amongst which we find goblet cells; in others the epithelium is ciliated. Many possess a lining which bears a striking resemblance to the membrana granulosa of the Graafian follicle, and consists of rounded cells, but a discus proligerus, an ovum, or lutein tissue were never seen. Other cysts are lined by several layers of flattened epithelium, and a few possess a membrane of transitional epithelium

built of several strata of cells, the deeper layers rounded or polygonal, the superficial columnar.

The contents of the cysts varied from clear serous fluid to thick jelly-like material. In none were sebaceous contents detected. I have not attempted to classify these cysts.

Epiblastic Structures.

(i) Nervous tissue. A noteworthy feature of this tumour is the large amount of nervous tissue it contains. Neuroglia is present in the form of large masses of irregular stellate cells, with rounded, well-staining nuclei and branching cell-processes. The processes from adjacent cells form a network, and in some of the spaces of the network lie cells resembling those of the cerebral cortex. As is usual in these growths, structures belonging to the central are represented more abundantly than those of the peripheral nervous system, but scattered through the tumour are many posterior-root ganglia and bundles of non-medullated nerve-fibres. Some of the sections reveal a structure which has interested me greatly, and which I believe to be of nervous origin. Sheets of epithelial cells, cubical and polygonal in shape, loaded with dense black pigment, are present in several parts of the tumour. These cells, which always line a cavity, resemble closely in their character retinal cells. In the neighbourhood of these sheets are nerve-bundles and collections of neuroblasts; isolated pigment cells are also seen, deep in the tissues.

(ii) Skin is present in several of the sections. The epidermis is composed in its more superficial layers of squamous epithelial cells, and in its deeper layers of rounded cells; the papillæ are not well marked. Hairs and hair follicles are present, sebaceous glands are numerous; but no sweat-glands or sweat-ducts are seen.

Hypoblastic Structures.

In most teratomata structures derived from the hypoblast are represented less abundantly than those of epiblastic or mesoblastic origin. In the specimen before us hypoblastic elements of very diverse forms are seen. One of the most interesting hypoblastic tissues is a membrane resembling closely the mucosa of the small intestine. This membrane, which lines a central cavity and is thrown into folds, exhibits many villus-like projections, covered on the surface by columnar epithelial cells with vesicular nuclei in their deeper parts. This mucosa rests upon a bed of unstriped muscle-fibres and is found in several parts of the tumour.

At one spot is a portion of a bronchus, lined by a layer of columnar ciliated epithelial cells resting upon a thin layer of submucous tissue rich in mucous glands. Outside this is a layer of unstriped muscle, and embedded in it are masses of hyaline cartilage. These respiratory

structures are particularly well-formed, and differ in no important respect from the normal bronchus of a new-born child.

Serous and mucous glands are relatively common, the latter present a close resemblance to salivary glands.

In reading descriptions of ovarian teratomata I have been struck by the frequency with which it is noted that kidney or liver structures could not be found. Wilms, writing in Martin's Handbook (*Krankheiten des Eierstockes*), states that they have never been described. In this respect the specimen before us is of some importance for, although I have not been able to demonstrate kidney structures, liver tissue is undoubtedly present, but in small quantity only. Some of the liver cells show fatty changes, and in the cytoplasm of others are large vacuoles similar to those seen in livers rich in glycogen which have been treated by certain reagents.

In addition to these structures belonging to physiological types, there are present columnar-celled epithelial structures, presenting characters which we associate with malignancy. Irregular masses and columns of atypical epithelial cells, sometimes with an alveolar arrangement, have invaded the connective-tissue stroma.

I publish this case because it proves clearly that solid ovarian teratomata are *not* "all clinically malignant."

I am indebted to Sir Francis Champneys for permission to use the notes made whilst the patient was under his care.

Prolapse and Pregnancy, with a Note on Vaginal Suspension.*

By Bethel Solomons, M.B., B.Ch., B.A.O. (Univ. Dub.),
ex-Assistant Master, Rotunda Hospital.

During my term of office as Assistant Master at the Rotunda Hospital I was struck by the number of cases of prolapsus uteri—some complicated by pregnancy, others simple—which came under my observation. The difficulty in treating the latter class of case is well known—far greater is the difficulty in treating those pregnant women who have had the ill-fortune to have suffered some neglect in their labour. I do not intend to dwell on the pathology of prolapse, for this alone would occupy a complete paper. My chief object is to discuss the best treatment of prolapse complicated by pregnancy.

Consider the case of a patient suffering from prolapsus uteri who becomes pregnant. What is the outcome? According to most authorities, (1) the uterus increases in size and the prolapse disappears; (2) the uterus may develop in the pelvic cavity, and incarceration with its disastrous consequences occur; (3) a great part of the prolapsed uterus passes outside the pelvis, the ovum remaining in the part which is still inside. Unless reposition is accomplished abortion or incarceration of that part of the uterus which contains the ovum will result; (4) when the whole uterus remains outside the vulva either abortion or strangulation of the uterus occurs. These then being the consequences of the condition, it must needs follow that some decided treatment is necessary. Cut-and-dried methods are laid down for some conditions, but the cut-and-dried methods which are laid down in our text-books for prolapse complicated by pregnancy are far from being satisfactory. Most authors recommend different forms of pessary—some associated with a T-bandage. If this treatment fails the majority recommend induction of abortion; whilst, if the case is infectious, hysterectomy is advised. The two cases which I am now about to cite show well the grave difficulties which may beset the obstetrician.

History of first case:—

Mrs. O'W., aged 23; tertipara; first confinement normal; in the second the uterus prolapsed when she was two months pregnant, and, despite different forms of pessary, including a stem pessary, the

* Read in the Obstetrical Section, Royal Academy of Medicine in Ireland, March 16 1912.

uterus again descended; she was consequently obliged to remain in bed until delivered of a living child at term. She was directed to come for treatment, but unfortunately postponed seeking admission to Hospital, and appeared later with the uterus in a state of procidentia and three months pregnant. Pessary treatment was again tried unsuccessfully for a month, and, realizing the invalidism that this young girl had undergone in her second confinement, I decided to adopt radical measures in order to avoid the risk of her becoming a chronic invalid. Having first informed her of the possibility of abortion, and having obtained her very willing consent, I performed the following operation which proved very effective:—An anterior colporrhaphy with tucking up of the bladder—an important procedure in technique which I acquired from Dr. Tweedy—circular amputation of the cervix, shortening of the utero-sacral ligaments as described by Dr. Jellett, a perinæorrhaphy with extensive posterior colporrhaphy and Alexander-Adams' operation. From this time, in the 4th month of her pregnancy, the patient's progress was uninterrupted, and instead of being a chronic invalid as during the whole of her previous pregnancy, she was able to lead an active life and was delivered five months later of a fine baby. An examination recently showed the pelvic organs to be perfectly normal in position.

History of second case:—

Mrs. E., aged 28; quartipara; first two confinements normal; she complained of bearing-down pains during the third pregnancy, at the conclusion of which labour passed off uneventfully. When she became pregnant in March 1910 her troubles rapidly increased, and after six weeks the uterus became completely prolapsed when she stood up or walked about. This was not relieved by any pessary, though many were tried. When four months pregnant the crisis came. The temperature rose to 104°F., and she suffered severe pain. She had been attended by a practitioner who happened to be away from town at this time, and I was called to see her. I found the cervix œdematous, ulcerated and prolapsed. On bimanual examination there was some very slight pain in the uterus and to the right side, the uterus being about three months pregnant. She had complained of discharge and feeling of sickness. A thorough examination of the chest and abdomen revealed both to be normal. I came to the conclusion that the fœtus was septic, and that the uterus should be emptied as the only means of saving her life. As it had been decided at a consultation about a month previously that this should not be done, I asked that the same consultant should be summoned, and as we disagreed about treatment, a third opinion was taken. The last consultant suggested vaginal douching first, and if this was without result, a further consultation. The patient was given a dose of polyvalent antistreptococcic serum (20 ccms.); then a very hot vaginal douche, and I was called six hours later, to

find a 3½ months decomposing fœtus in the bed. The placenta was very adherent, and was removed with great difficulty with tipless gloves. I was informed that the puerperium was uneventful.

In reviewing these two cases, in the first the end justified the means, and if again I were called on to act in a similar case my treatment would be the same. In the second case the choice lay between immediate induction of abortion and vaginal hysterectomy with drainage; the latter could be dismissed on the assumption that the fœtus alone was septic. In searching for literature on the subject of prolapse and pregnancy, although there has been much written, little has been published beyond what can be found in the text-books. Barton reports a case of hypertrophy of the cervix, where no support was satisfactory and the pregnancy was allowed to proceed, the result being death of mother and child. Kennedy, an ex-Master of the Rotunda, reports a somewhat similar case.

It is difficult to lay down any definite rules for the treatment of prolapse and pregnancy, but the following seem to be rational:—

1. In an ordinary case pessary treatment.

2. In a case where the pessary does not correct the displacement, having regard to the danger of abortion and septic infection of the prolapsed uterus, either perinæorrhaphy or a thorough curative operation for the prolapse.

3. In a case where infection has occurred, after a thorough cleansing of the cervix the uterus should be emptied. If the uterus is septic, hysterectomy with drainage should be practised.

Much has been written about the dangers of pregnancy subsequent to vaginal suspension of the uterus for prolapse and other displacements. As the operation is easy and the after effects seemed satisfactory, I determined to secure some histories of cases after the operation. I therefore wrote to 60 patients on whom the operation had been performed in the following manner during the Mastership of Dr. Tweedy:—Anterior colporrhaphy having been performed the bladder was pushed up and the peritoneal cavity opened; the uterus was then drawn through the opening in the vaginal vault and two silk sutures were introduced, the first through the vaginal flap on one side, through the peritoneum of the same side, through the uterus just below a point midway between the Fallopian tubes, and then through the peritoneal and vaginal flap of the opposite side. The second suture was introduced half an inch below this. These stitches all lie below the bladder. From 26 of these 60 patients replies were received; 20 letters were returned owing to wrong address or removal; there was no reply to the others. The following were the questions to which the patients were asked to reply:—(1) Have you been well since the operation? (2) Do you consider yourself cured? (3) Have you given birth to a full term living child since the operation? (4) Did you have any trouble in pregnancy or in the confinement?

(5) Have you had any miscarriages since the operation? In answer to the first question 19 were well since the operation, 1 was relieved for some months, 3 were fairly well and 3 were not relieved. To the second question all but 5 answered in the affirmative; 1 has had two babies since the operation; 7 have had one baby; 1 has had six miscarriages, 1 has had two miscarriages, 4 have had one miscarriage. There was no dystocia in any of the cases. I had frequent opportunities whilst in the Rotunda of examining patients who had had this operation performed, and found that the results were almost invariably successful. In two cases the retroversion returned.

In conclusion, vaginal suspension is to be strongly recommended for the cure of mobile uterine displacements, especially for patients who require other vaginal plastic work. The operation has a large percentage of cures, and tends to no untoward symptoms in pregnancy, labour or the puerperium.

I wish to thank the Master of the Rotunda Hospital for the use of the Rotunda books for these statistics, and also for permission to publish the first case.

The Treatment of Acute Puerperal Inversion of the Uterus.*

By Miles H. Phillips, B.S., F.R.C.S.,
Surgeon to the Jessop Hospital for Women, Sheffield.

During the past two and a half years I have been called upon to treat three cases of acute complete inversion of the uterus. In this communication I wish to consider the treatment only of this rare and frequently fatal complication of labour. In my opinion the treatment advised by almost all text-book writers should be reconsidered. They urge immediate replacement of the inverted uterus in all cases. I wish to maintain that the mere displacement should be ignored, until the shock, which is so frequently present, has been satisfactorily treated.

All authors point out that shock is the most important symptom. It is certainly present in the majority of cases; in some it is very profound, and in not a few it has caused death within an hour or two of the accident. On the other hand, in a considerable number of cases, it is stated that there was no shock at all.

Pain and hæmorrhage are the other symptoms; the latter varies in amount very considerably, it is only rarely profuse.

The shock is produced, I believe, during the actual process of inversion, for it is well marked immediately after the accident, but, unless severe enough to have caused death, it gradually disappears, even though the uterus is left in its inverted state. A large number of chronic cases, which had an acute origin, have been recorded. It is therefore incorrect to state, as one well-known text-book states, that "great shock," the chief symptom of acute inversion, "remains as long as the uterus is inverted." [1]

Now the process of re-inversion also causes shock even when the patient is anæsthetized. This I have actually observed. The shock so produced may be sufficient to kill the already collapsed patient; indeed there can be no doubt that this has frequently happened. A study of a long list of recorded cases would appear to prove the point. With the help of my friend, Dr. King, I have collected, chiefly from English literature, 184 cases of acute puerperal inversion; of these, 43 died, *i.e.*, 23·4 per cent. The mortality given by various authors varies from 14 to 50 per cent.

* Read before the North of England Obstetrical and Gynæcological Society, at Sheffield, on November 17 1911.

Of 79 cases, in which the uterus was *immediately* replaced *in the presence of marked shock*, 24 (or over 30 per cent.) died. In 23 cases, in which it is definitely stated that there *was no shock*, immediate replacement was followed by recovery in each instance. In only one case is it stated that replacement was deliberately postponed until the extreme shock had passed off; this patient recovered.

In 11 cases there is no note as to the presence or absence of shock (probably, therefore, it was not present in any marked degree); immediate replacement was successful in each of these cases.

In 17 cases death occurred with the uterus unreduced; in many of these the patient had died from shock or hæmorrhage before the arrival of the doctor who recorded the case.

In 47 cases the uterus was not reduced at once, but was allowed to pass into a state of chronic inversion which was treated later in various ways, with recovery of the patient. In two other cases death was due to septic infection. In two cases the body of the uterus was twisted off by the attendant, and yet the patients recovered.

Of the 43 deaths, 41 took place within a few hours. The figures also show that *immediate* replacement of the uterus is followed by fatal results in 21 per cent. of cases. On the other hand, in the cases which were allowed to become chronic only two out of 47 died; less than 5 per cent.

I would like to advocate an intermediate course. The shock should be energetically treated by saline infusions and injections of pituitary extract and morphia. Then, in a few hours' time, when the patient has rallied, she should be anæsthetized and the uterus replaced. At the same time it is wise to repeat the saline infusion, and any other stimulating measures which may be considered necessary.

It seems to me that the following advice, given by an eminent English obstetrician,[2] is, to say the least, dangerous. After describing the collapsed condition of the patient, and stating that two-thirds of the patients die within twenty-four hours, he says: "The treatment is to push back the inversion. However exhausted the patient may be, and however unfit she may seem to undergo an attempt at replacement, you must remember that this is the only thing that will benefit her, and that the longer you wait the more difficult the reposition will be, and the less fit will the patient be to endure it. Therefore do not waste time in trying to revive the patient's strength, but replace the uterus *at once*." "An anæsthetic will make reposition easier, but rather than delay replace the uterus without anæsthesia."

I think there can be no doubt that the earlier reduction is attempted the more easily it is effected, but a delay of a few hours does not appear to increase the difficulty materially, whereas time is required in which to revive the collapsed patient.

Of course, in those cases in which there is no sign of shock, the uterus can be immediately replaced, but even then the patient should be anæsthetized, and a precautionary saline infusion given.

In my three cases the line of treatment I have indicated was used successfully. They were all young primiparæ, and had been delivered by medical men with large midwifery experience. In one case the inversion followed manual removal of the placenta; in the second it was due to manual expression; the third was a case of precipitate labour followed by spontaneous inversion of the uterus with the adherent placenta.

In the first case there was free hæmorrhage for a few minutes only after the placenta had been removed manually; the patient complained of great pain, and became very collapsed. The doctor, not recognizing the condition, made no attempt to replace the uterus. I did not see her until about four hours later. She was then very white and cold, with a small, feeble pulse of 130. I gave her a saline infusion, with a quarter of a grain of morphia, wrapped her in hot blankets, and after she had rallied sent her into Hospital. Two hours later she was anæsthetized, and an intravenous infusion of saline started. The inverted uterus was pulled outside the vagina, thoroughly washed and then reinverted without any difficulty. The ruptured perineum was repaired. Her general condition was greatly improved afterwards, but a few hours later she again became collapsed. She soon rallied, however, after a hypodermic injection of strychnine and digitalin, and a subcutaneous saline. She made a good recovery.

In the second case a slow second stage was terminated by forceps. Considerable force was used to express the placenta, with the result that the uterus was inverted as the placenta came away. There was only slight hæmorrhage. I saw the patient an hour later. She was very pale and collapsed, with a feeble though regular pulse of over 130. There was no bleeding. No attempt was made to replace the uterus, which lay in the vagina. I gave her a hypodermic injection of morphia (gr. $\frac{1}{2}$) with atropine. She soon became drowsy, and the pulse improved markedly. She was sent into Hospital, where, about five hours after the accident, she was anæsthetized and the uterus was replaced with somewhat more difficulty than had been experienced in the first case. The manipulation took ten minutes and produced a good deal of shock, although an intravenous infusion of saline with strychnine was being given. Deep tears in the vagina and perineum were repaired. The patient's condition was greatly improved before she was sent back to bed. Rectal saline with hypodermics of strychnine and digitalin were given at intervals, and there was no recurrent shock.

The third case is the most interesting to me, as it best illustrates my argument. Soon after a " precipitate " expulsion of the child the

patient, unassisted by the doctor, expressed the inverted uterus with the adherent placenta; the whole mass lay outside the vagina. The doctor found the patient very collapsed, " just," as he said, " as if she had a severe hæmorrhage, and yet there was only a little bleeding from the torn perineum." He sent for his partner, who immediately removed the placenta and attempted to replace the uterus. It was easily pushed back into the vagina, but further efforts caused the patient, who was not anæsthetized, great distress. After a few minutes the doctor desisted, as the patient appeared to be dying; she was pulseless at the wrist. A hypodermic injection of pituitary extract was then given. I arrived forty minutes after the inversion had taken place, and found the patient very collapsed, with a feeble pulse of over 150. Her condition was much more serious than that of the other two cases. Two pints of saline were quickly infused into the axilla and a quarter of a grain of morphia added. At the end of forty minutes the patient's condition was greatly improved, she was much warmer, had a fair pulse of 104, and had ceased to complain. Later she was taken into Hospital, but even then her condition did not seem to warrant an operation, so saline infusion and other forms of stimulation were renewed. By the next morning she was considerably better, and some twenty hours after the inversion had occurred she was anæsthetized, infused with saline and pituitary extract and the uterus replaced. This required a good deal of pressure for 12 or 15 minutes. Two catgut sutures were put in the torn cervix and the ruptured perineum was repaired. There was some septic endometritis during recovery, but her condition never gave cause for anxiety. In this case it is likely that the attempt to replace the uterus while she was suffering from shock nearly cost the patient her life.

References.

1. Tweedy and Wrench. " Practical Obstetrics."
2. Herman. " Difficult Labour."

Case of Concealed Accidental Hæmorrhage Treated by Cæsarean Section and Hysterectomy.*

By Miles H. Phillips, F.R.C.S.,
Surgeon to the Jessop Hospital for Women, Sheffield.

On several occasions, at meetings of this Society, I have heard it stated that there are certain cases of accidental hæmorrhage in which Cæsarean section followed by hysterectomy is the only treatment likely to save the patient's life. The following case appears to me to justify that opinion:—

The patient (Mrs. L.W.) was 33 years old. During the previous thirteen and a half years she had had nine full-time labours and one miscarriage. We learnt afterwards that she had had post partum hæmorrhage on several occasions and also ante partum bleeding at the last confinement. She thought herself about eight and a half months pregnant. Up to the morning of December 23 1911 she had been in good health. At 8-15 a.m. she was awakened by very severe abdominal pain. She fainted. An hour or so later, on attempting to sit up, she again fainted. Dr. Walker, of Tinsley, then saw her, and at once sent her, by ambulance, into hospital. There was no visible bleeding.

On admission, the House Surgeon, Dr. Chisholm, whose notes I quote, found her very pale, with drawn features and a very feeble pulse of 120. She was dazed and restless, complaining of pain all over the abdomen. The uterus was at least as large as that of a full-time pregnancy. It was tense and the fœtal parts could not be felt. There was no hæmorrhage from the vagina. The cervix was thick and firm and just admitted two fingers; the membranes were not bulging. As soon as the membranes were touched by the gloved finger out came a huge gush of blood which poured from the vagina as from a tap. In the hurry it was difficult to say if the membranes were ruptured. A Sims's speculum was at once inserted and the vagina was packed with gauze as tightly as possible. A tight abdominal binder was also applied. Very soon afterwards blood began to escape freely through the packing and the pulse became "a mere flicker" and quite uncountable.

Considering that an immediate abdominal section might give her

* Related at a meeting of the North of England Obstetrical and Gynæcological Society in Sheffield, March 15 1912.

a chance, Dr. Chisholm promptly had the theatre got ready and telephoned for me. Very little ether was required to anæsthetize her. At the same time an axillary infusion of saline containing pituitary extract, was given. The abdomen and uterus were opened as quickly as possible. A large quantity of blood and blood-clot came away from the interior of the uterus. The child was as dead-white as the mother. The placenta was found loose on the posterior wall of the fundus, completely separated from the placental site, which was later on found to be on the anterior wall. The membranes were intact. The uterus was perfectly flabby. It was at once amputated with the right appendages at a level slightly above the internal os, the ovarian and uterine vessels being first clamped. There was absolutely no bleeding from the stump, nor had there been any from the abdominal wall and the uterine incision. The four vessels were ligatured with sewing thread and the edges of the uterine stump firmly sutured together with catgut before being covered with peritoneum. By the time the abdominal incision was closed the patient was in a very bad way, so she was left in the hot operating theatre and in a partial Trendelenburg position for the next three hours. Oxygen, strychnine, digitalin and saline infusions were used.

For the next thirty-six hours recovery was very doubtful. Thereafter she made steady progress. On the fourteenth day she seemed fit to get up, but on vaginal examination a thick white slough was seen projecting through the external os. It was snipped off, but during the next ten days several similar pieces of slough presented, and were cut away. They came from the upper part of the stump. At first they were odourless, and the patient's temperature was normal, but later they became offensive, and the temperature for nine days fluctuated between normal and 102°. The patient's general condition steadily improved, in spite of a slight para-cervical cellulitis, which had not quite disappeared when she went home on the 33rd day after the operation. She then looked and felt splendidly well.

I think the sloughs were produced by ischæmic necrosis of the lining mucous membrane, and possibly also of part of the muscular wall of the uterine stump. The process appeared to be an aseptic one at first, and was probably due to local anæmia caused partly by the general bloodlessness of the patient and partly by ligation of the uterine arteries and possibly overtight suturing of the flaps of the uterine stump.

I have never seen such a condition before, but I have read of sloughing of the cervix after supra-vaginal hysterectomy for fibroids. Though the abdominal wound had healed by first intention three or four tiny superficial sloughs of the skin edge also formed during the second week.

The causation of the ante partum hæmorrhage in this case

is not obvious. The placenta appeared to the naked eye quite healthy. It was not examined microscopically. The child was well developed. There was no albuminuria or other sign of toxæmia. The patient had been in excellent health and had not met with an accident. At the same time, she had been working very hard in looking after her large family. The uterus was extraordinarily flabby after it had been emptied and its wall was thinner than usual, otherwise it appeared normal. It is being examined with a view to determining, as far as possible, the relative proportion of muscular and connective-tissue fibres, and also the condition of its elastic tissue.

A Curious Instance of Vicarious Menstruation.

By

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In 1898 a little girl, eight years of age, was referred to one of us (Greig) on account of a discharging sinus on the left cheek. Though the parents were alive and healthy the family history could scarcely be described as satisfactory. The patient was one of nine, of whom only the patient and other two, said to be healthy, survived; the others died in infancy from causes unknown to the mother. The child was stated to have had a fall twelve months previously, and the swelling in front of the left ear was noticed soon after that. Poultices were applied during three months until the swelling burst, and it had discharged continuously since. The child, on admission to the Dundee Royal Infirmary, was found to be fairly well-developed and healthy. She presented in front of the left ear a discharging sinus connected with a suppurating gland, the latter being about the size of a marble and adherent to the skin, which was thin and friable and dusky-red in colour. On account of the extent and severity of the skin involvement and the mixed infection of the suppurating focus the sinus was simply enlarged and scraped out and no attempt made to excise the gland. With this little operation the swelling disappeared and the discharge greatly diminished, but a small sinus persisted, and though it was generally skinned over it was apt to break down on occasions and discharge again. It required practically no attention, however, and the child was not seen again until February 1904, when Dr. Wardrop of Alyth recommended her readmission to hospital.

The patient was then fourteen years of age, and was stated to have developed periodic bleedings, which had recurred during the preceding five or six months, from the small pin point opening in the upper part of the scar of the old operation. During this time the periodicity of the bleeding had not been a feature, at least no note was taken of how often it occurred, but it seems to have been oftener than once every month. There was no appearance or history of hæmophilia and no inordinate bleeding had ever occurred on account

of any other cut or accident, and her sex negatived such a supposition. The bleeding, when it occurred, was fairly profuse and apparently uncontrollable and was in greater quantity to begin with than on succeeding days. For instance, her mother stated that the bleeding occurred six or seven times on a certain date and to a slight extent occasionally on five succeeding days. It was said that when the bleeding occurred it flowed with a "squirt out of the wound."

In May 1905 the sinus had soundly healed, and there had been no bleeding from the cheek for four months, but there had been at equal intervals on four occasions a discharge of blood from the inner canthus of the left eye, where there was never an appearance of any solution of continuity. On the latest occasion this had recurred three times in succession, the bleeding being sufficient to fill three pocket-handkerchiefs. In answer to enquiries in September 1907 Dr. Wardrop wrote that the bleeding from the inner canthus had continued every month for six months with peculiar regularity until the normal menstrual flow had become established. Since then there has been no bleeding from the face nor has the gland given her any further trouble.

Genuine cases of vicarious menstruation are so rarely met with that some authorities question the existence of such a condition. Statements by patients to prove its occurrence must be taken with caution. Many instances have been quoted where neurotic patients have purposely produced bleeding in various parts of the body to rouse interest in their ailment. There can be no doubt, however, that with amenorrhœa or scanty menstruation (but with functional ovaries), periodic discharge of blood may occur from any mucous surface. Perhaps the cases most open to doubt are those where the bleeding comes from the lungs, because the initial symptoms of pulmonary tuberculosis are frequently amenorrhœa with uterine atrophy. Cases of vicarious hæmorrhage have been reported as occurring from almost every mucous surface. The most frequent instances are from the nose, perhaps on account of a certain reflex relationship which, according to Fleiss, exists between the nasal and uterine mucous membranes. He reports a case where epistaxis took place regularly till pregnancy occurred, when the epistaxis ceased, to be resumed again during the puerperium. Next in frequency is bleeding from the breast. Cases of this type have been reported by Jaworski, Politzer and Thorston. Sometimes periodic secretion of milk from the breasts has been noted in the presence of amenorrhœa, unassociated with pregnancy. Oswiecinski reports a case where the right breast became swollen and secreted colostrum for three days at regular monthly intervals. One of us (Kynoch) has had two cases under observation where amenorrhœa, associated with ovarian cysts, has been accompanied by periodic tenderness and secretion from both breasts for several months. After ovariotomy normal

menstruation was re-established, and in one case pregnancy occurred. Jones reports a similar case. Gottschalk reports a case of periodic bleeding from the ear in a case of otitis media following scarlet fever with consecutive atrophy of the uterus. Clairborne reports a case of periodic bleeding from the left conjunctiva lasting for two or three days. Marsi noted a case of periodic bleeding from the bladder in a case of vaginal hysterectomy for bilateral tubal disease. Hauptmann reports a remarkable case of submucous hæmorrhage on the upper lip. Cases of hæmatemesis have to be received with caution till organic disease is excluded.

Bleeding from cicatrices, as reported by us, is rare. Somewhat resembling our case is that described by Kerley of a girl, 15 years of age, who developed an abscess on the left side of the nose. From a sinus there came monthly a red-tinged discharge lasting three days. The sinus closed up during each interval.

The cause of this condition is obscure; but it is probably due to the impulse to menstruation being reflected to some distant mucous surface instead of to the uterus. From these mucous surfaces bleeding is favoured by periodic increased vascular tension along with weakness of the capillaries from which the bleeding takes place. In the treatment of this condition the chief object should be to restore normal menstruation when the vicarious bleeding usually ceases. In the rare cases of severe bleeding the usual remedies for checking it should be applied. Radical treatment is only indicated in very exceptional cases. Webster and Fischel each report a case where the ovaries were removed on account of repeated vicarious hæmorrhage, endangering life. It is to be noted, however, that Gottschalk and Marsi both report cases, where vicarious bleeding from the stomach and bladder occurred after a radical operation for diseased uterine appendages.

Primary Mesothelioma of the Fallopian Tube.

By Clara Eglington, M.B., B.S.,
From the Pathological Department of the Leeds General Infirmary.

It seems well to place this case upon record, not only because, as a primary condition, tumours of the Fallopian tube are rare, but also because, in this instance, the histology is of great interest.

Clinical history. Mrs. B., aged 47, was admitted to the Leeds General Infirmary, under Dr. Hellier, in May 1911. She had been married twice, and had had two full-term pregnancies by her former husband, but none by the latter, to whom she had been married 20 years. She had "the bad disorder" (? gonorrhœa) during her first marriage. Menstruation ceased three years ago, and was previously unimportant. She has complained of a fœtid, watery, vaginal discharge, often streaked with blood, for 13 years, which, however, has been much worse for 8—12 months, and of late has contained a considerable amount of blood. For 12 months she has had frequency of micturition and incontinence of urine, and whenever she has voluntarily emptied her bladder the vaginal discharge has been most copious. She gives a definite history of loss of weight for three months. Some four months ago she first noticed a discharge from the umbilicus which has persisted to the present time.

Operation. On May 6, 1911 Dr. Hellier operated and removed the left appendages, which he found enlarged and adherent to the posterior wall of the lower one-third of the uterus. The right appendages and the uterus appeared normal. Recovery was uneventful, and she was sent to a convalescent hospital 11 days after the operation.

In Dec. 1911 I saw the patient and questioned her carefully for any symptoms suggestive of primary and secondary growths in other organs, but could find nothing to make me think the tubal tumour other than the primary and only lesion. She said she was better than before the operation, but had still frequency of micturition and some vaginal discharge, which, however, was inoffensive and less copious. Pelvic examination failed to show any abnormality in the uterus or other appendages.

Since writing this I hear that the patient has been to the Infirmary again, and has now a definite swelling in the left of the pelvis palpable in the abdomen. She also has œdema of the left leg. There seems no doubt that the growth has recurred.

Morbid anatomy. The naked eye appearance of the specimen as received from the operating theatre was that of a retort-shaped Fallopian tube showing a division into two distinct portions, namely, an outer bulbous extremity, closed, and about the size of a pigeon's egg, and an inner narrow portion approximating more nearly to the normal appearance. The tube was curved on itself, and was densely adherent to the ovary, which lay in its concavity, and the whole mass showed evidence of surrounding adhesions. On laying open the specimen the enlarged distal portion consisted of a friable, shaggy mass which filled the lumen and appeared to occupy nearly the whole thickness of the wall. It was, however, bounded peripherally by an obviously thickened peritoneal coat. The proximal portion appeared somewhat dilated; its wall was thicker than normal and the inner lining was smooth.

Histology. Sections have been taken (1) through the proximal portion of the tube; (2) at the junction of the healthier part of the tube and the tumour; (3) through the main mass of the tumour; and (4) through the ovary.

1. The proximal portion of the tube. The mucosa is here entirely replaced by a very vascular granulation tissue in which are numerous foci of round and plasma cells. The inner surface is smooth and lined by a fibro-cellular layer. The peritoneum is thickened and vascular, and foci of inflammatory cells are scattered throughout it as well as through the muscular layers.

2. At the junction of tumour and tube. As the region of the tumour is approached there is a gradual increase in the number of inflammatory cells in the mucosa, and an occasional outlying focus of round cells surrounding a small tumour mass is seen. The tumour itself begins abruptly, and is at once seen to be a cellular new growth heaped up above the level of the mucosa, replacing it entirely and infiltrating the superficial muscular layer. In structure it consists of solid masses and columns of cells with a more or less alveolar arrangement; in parts there is a villous appearance and the cells are placed at right angles to a central core of connective-tissue. There are large areas of necrosis, most of them situated in the centre of the solid masses. The cells for the most part are rounded and oval, with round, regular nuclei, varying but slightly in size and shape from one another; at first sight the appearance is that of a round-celled sarcoma. Here and there enormous cells occur, multinucleated or with single, oval, irregular nuclei more or less vesicular in character.

The stroma is cellular. It varies in amount in different parts, extending only as fine strands between the superficial masses of cells, but deeper down it is abundant and occurs as broad bands between the tumour masses. By means of Van Gieson's stain it is demonstrated that no stroma occurs between the individual cells of the growth. Blood-vessels are not numerous, and when they occur their

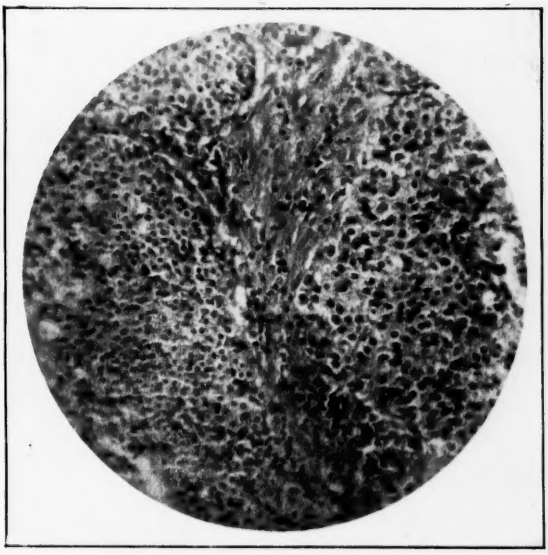

Fig. 1. Section through the main mass of the tumour.

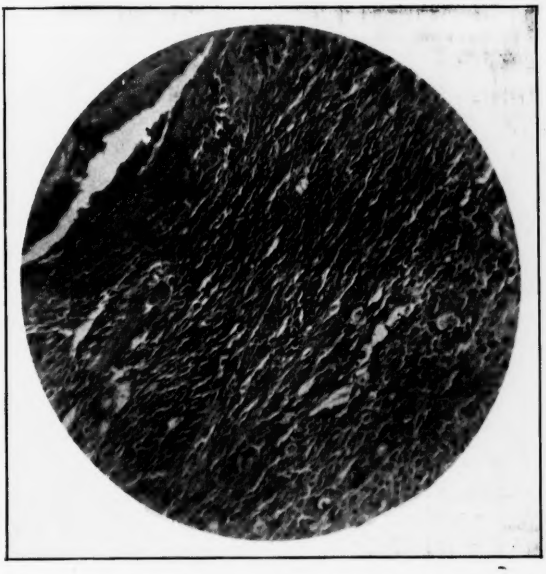

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Fig. 2. The margin of section showing the elongated appearance of the cells.

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walls are well formed. The peritoneal coat is distinctly thickened, and both it and the deeper muscle layers are invaded by foci of round cells. In the centre of some of these foci there are small masses of tumour sometimes apparently contained within a lymph channel; one such nodule is seen immediately beneath the peritoneum. Plasma cells are very numerous throughout the stroma of the growth as well as in the various layers of the tube.

3. Section through the centre of the growth shows much the same structure as that already described at the margin. It may be mentioned, however, that necrosis is more advanced and the arrangement of the cells is less readily defined.

In addition to this, one other point of great interest must be mentioned in connection with the structure of this tumour. At the margin of one of the sections there is an area of spindle-shaped tumour cells which have the exact appearance of a spindle-celled sarcoma; on careful examination it is seen that the cells of the stroma in this situation tend to be elongated, as do also many of the plasma cells, and this makes it probable that the spindle shape is merely due to pressure.

4. Section through the ovary shows a fibrotic change, but no evidence of involvement of the organ by new growth.

Commentary. It is diffiicult to determine the exact nature of this tumour. While the individual cells are like those of sarcoma the general arrangement is more like that of carcinoma. A consideration of the development of the Fallopian tube is of value. The Müllerian duct is of mesothelial origin. If then the lining of the fully-developed Fallopian tube is a direct derivative of this structure it follows that tumours arising from it are mesotheliomas. But, since the terms carcinoma and adenoma have merely a morphological significance, they may quite well be applied to the more highly differentiated members of this class, and need not be reserved for epiblastic or hypoblastic growths of similar structure. Adami* would avoid confusion by the use of such terms as mesothelial cancer, etc. Under these circumstances the term mesothelioma is best restricted (in the case of the Fallopian tube) to those transitional growths of indeterminate character such as the one just described; and I believe, after a careful perusal of the literature, that this is the term most applicable to many of the cases of so-called carcinoma or sarcoma of the Fallopian tube.

I may conclude by recapitulating a few of the other points of interest in this case. The tumour was unilateral; it was discovered in a woman three years after the menopause, and had given rise, among other symptoms, to pain and a watery vaginal discharge. The history points to a probable gonorrhœal infection more than 20 years

* Adami. *Principles of Pathology*, 1910, vol. i, p. 708.

before, in support of which there is histological evidence of chronic salpingitis probably of long duration. Alban Doran,* in his summary of 100 cases of primary cancer of the Fallopian tube, gives it as his own opinion, as well as that of Orthmann, Sänger, Barth and Boxer, that cancer of the Fallopian tube is usually preceded by a chronic inflammatory lesion.

I wish to express my thanks to Dr. Hellier for his kind permission to use this case.

* A. Doran. "Cancer of Fallopian Tube." *Journ. Obst. and Gyn.*, 1910, vol. xvii, pp. 7, 8.

REVIEWS OF CURRENT LITERATURE.

UNDER CHARGE OF EARDLEY HOLLAND, M.D.

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The Genital Origin of Nervous and Psychic Disease.

La Ginecologia Moderna, November and December 1911, contains an account of Professor Bossi's address to the Obstetrical Society of Paris and of the discussion which subsequently followed. The aim of his lecture was to show that many cases of nervous and mental disease are entirely due to anatomic or functional lesions of the reproductive organs, that mania and crime are too often the extreme indications of these diseases, and that it is the duty of physicians and legislators to investigate and remove the primary cause. The State should consult the gynæcologist, as it does the surgeon or the mental specialist; and if any pathologic utero-ovarian condition be found, that should be cured prior to or at least during any other form of treatment or restraint. If the abominable and avoidable vice of drunkenness be held an attenuating circumstance in crime, and a reason for lessened penalty, much more should an auto-intoxication, for which the victim is not responsible. Referring to the amount of truth in the ancient idea of hysteria, Bossi differs from Charcot's view, that since hysteric phenomena occur not only in women but in men and in children, the disease is idiopathic to the nervous system and constitutes a psychosis. He cites typical and severe cases of hysteria and chorea in which, after years of treatment by suggestion or by other recognised methods had failed, all so-called permanent stigmata vanished when uterine displacement or inflammation was cured. He describes still more striking cures of acute and chronic mania, suicidal and homicidal, and alludes to the celebrated trial for murder of the Countess Tarnowska who owed her acquittal to his able defence. He lays special stress on the necessity for exercising care in cases of dementia præcox, on which diagnosis so many young women are relegated to asylums and to deleterious association with the insane, when a considerable number could and should have been cured in gynæcological homes. The amenorrhœa which usually accompanies this disease is in itself an indication of deranged or suppressed internal ovarian

secretion and this, joined to the reflex irritation of a retroflexed uterus, or to the toxæmia arising from retained pus and blood in the uterine cavity, leads to severe neurasthenia and to most distressing mental symptoms.

Finally, Bossi considers the three main objections to his views:—(1) that many women have gynæcological lesions, who are neither neuropathic nor criminal; (2) that many who are insane or criminal present no genital lesion; (3) that in many cases a utero-ovarian lesion may be cured and mental aberration may persist or even grow worse. To (1) and (2) he replies that, since heredity, education, occupation, family and social environment, are all elements in physical and psychic well-being, they may turn the scale for or against a mental breakdown, should an auto-intoxication arise. They are often irremediable factors. Restoration of the reproductive system to its normal state is possible, and may enable the patient to cope with all her other disadvantages. He does not claim a genital origin for all cases of mental disease, but he is convinced that, what has proved to be a cause in so many, may pass undiscovered in many more. He has shown that the most serious mental mischief is due not to serious but to slight uterine lesions, and it is the slight lesion which the careless or unskilled physician disregards or fails to detect. There should be greater attention paid to psychic symptoms by gynæcologists, and greater co-operation between gynæcologists and mental specialists, because the modern tendency to specialise leads to morbid manifestations being regarded as idiopathic when they are only symptomatic. (3) Persistence or aggravation of mental symptoms is a reason for early intervention not for its total neglect. The longer the physical irritation has existed the more systematised are the nervous changes. They may easily have become incurable or curable only long after the primary stimulus is removed. Further, treatment does not always mean cure, and this is especially true of radical operation. Except to save life, this is an indefensible mutilation. The aim of a conscientious gynæcology should be to restore the genital organs to their normal state.

In conclusion, Bossi hopes that adoption of the course he advocates may lead in juridical circles, not only to a more honest and sympathetic defence of women, but also to prophylaxis against crime.

In the discussion which followed, M. Picqué bore testimony to the frequency of association of genital lesions with mental alienation. From his own experience he would estimate this frequency in 59 per cent. of all mental cases, but he thinks this an insufficient induction to establish the relation as one of cause and effect, nor can he recommend systematic intervention, as he remembers that 125 cases of mental exacerbation after intervention had been reported to the Société de Chirurgie. M. Schockaert considered the effect on the central nervous system of reproductive lesions as due to reflex irritation rather than to auto-intoxication, and described cases in support of his views. M. Pinard and M. Doléris supported the intervention recommended by Professor Bossi, and it was unanimously agreed that in all cases of mental disease careful gynæcological examination is indicated. J. H. T.

Disease of the Genital Organs and Insanity.

Picqué (*La Gynécologie*, Jan. 1912) criticizes a recent paper by Bossi of Genoa. He thinks that gynæcologists do not sufficiently consider the heredity and other psychic factors and are too apt to ascribe the psychoses to local causes, while similarly the alienists disregard local lesions. He

himself tries to take a middle course and considers his cases not merely from the gynæcological standpoint but from that of general surgery especially in regard to acute and chronic sepsis. He does not agree with Bossi that mutilating operations are useless and that all operations must result in a restoration of the parts *ad integrum*. His experience shows that where the uterine condition is such as to react on the brain, ablation of the uterus makes this reaction disappear. Eighty-nine per cent. of his women patients have lesions of the pelvic organs; some of these are not cured but rather have the condition aggravated by local treatment. Some of the patients have no pelvic lesion. For a time all the women admitted to the asylum were examined gynæcologically, but with the death of the gynæcologist this routine practice has been interrupted, though he thinks it highly important. E. H. L. O.

Adenocarcinoma of the Vagina.

HIRSCH (*Zeitschr. f. Geb. u. Gyn.*, Bd. lxix, Hft. 3) describes a case which he believes to have been a graft implantation recurrence from an adenocarcinoma of the cervix. The patient had, when she came to hospital, an irregular friable cervix, which bled on examination. Cancer was diagnosed, and the uterus removed by Wertheim's technique. Several iliac glands were removed and microscopically proved to be carcinomatous. The patient made an uninterrupted recovery, and 19 days after the operation the vaginal scar was quite healed. Seventeen days later she was noticed to have a small fungus-like patch on the posterior vaginal wall just where the vaginal portion of the cervix had previously lain. This was excised and shown to possess all the characteristics of the original growth in the cervix. The patient eventually died two years later from recurrence.

The author points out his reasons for believing that this was a true case of ' contact ' cancer implanted on the epithelium of the vaginal wall. R. W. J.

The Monthly Cycle in Woman.

RICKER and DAHLMANN, Magdeburg (Beiträge zur Physiologie des Weibes, in *Volkmann's Samml.*, Nos. 645, 646 1912), devote this double number to a study of the monthly periodic wave which affects the life of women so markedly. They refer to the early work of Goodman, Mary P. Jacobi, Stephenson, Ott and others who described the differences in blood pressure, period of tendon reflexes, temperature and so on, and also to the histological work of John Williams. Much of this work they maintain has been undeservedly overlooked or forgotten, especially by modern pathologists. Observers agree that the blood pressure is lower during the menstrual flow than before and after. This lowering of pressure is obviously not caused—as was at one time believed—by the loss of blood, for this last is comparatively trifling in amount and the lowering of pressure precedes the flow : it results from the hyperæmia of the abdominal and especially the pelvic organs. This hyperæmia again is caused by the action of the vaso-regulating nerves, which in turn are excited by peripheral stimulation of some sort, and a considerable portion of this study is taken up by a discussion of the nature of this exciting stimulus, and of its mode of action. Ricker and Dahlmann describe the results of stimulating the vaso-constrictor and vaso-dilator nerves and show that excessive or continued stimuli tend to dilate the vessels. The various forms of hyperæmia are distinguished—with and without extravasation of blood corpuscles or diapedesis of leucocytes.

The cycle is divided into various parts; a post-menstrual stadium of about 18 days, after the cessation of the flow, a pre-menstrual stadium of 6-7 days, before the flow, and the menstrual period itself of 4 or 5 days. The uterine mucosa in the first or post-menstrual stage is one of relative hyperæmia associated, in its later part, with the accumulation of cell plasma which in the second stage is transformed into secretion which by its presence stands in causal relation with the hyperæmia which is now absolute. The vaso-dilators become more active than the constrictors and then both fail, and the destruction of tissue and hæmorrhage of menstruation occur.

The exciting cause is chiefly in the nervous impulses from the ovary, and also in a less degree in impulses from the uterus by the medium of the lymph circulation. The hypothesis of Pflüger that the tension of the Graafian follicle before it bursts reflexly causes menstruation is discussed and rejected, as also in regard to the suggestion that "internal secretion" is the cause: if not absolutely rejected this hypothesis is considered not proven. Fränkel's belief that the internal secretion of the corpus luteum controls the implantation of the fertilized ovum may be admitted without committing oneself to the belief that it excites menstruation. Post operative menstruation and *Mittelschmerz* are real menstrual periods. The effects of castration and of hysterectomy are described and explained, as also of ovarian implantation: the afferent nerves no longer bring the same impulses and the efferent excitations radiate to other organs.

E. H. L. O.

Striped Muscle-fibres in Round Ligament.

SCHKLOVSKY (*Monatsschr. f. Geb. u. Gyn.*, Dec. 1911, p. 725) exhibited at a recently reported meeting of the St. Petersburg Obstetrical and Gynæcological Society a fibromyoma of the round ligament. The microscope revealed not only plain muscle cells but also distinct striated muscular fibres. This histological peculiarity must, in Schklovsky's opinion, represent some anomaly of development, as the round ligament is essentially part of the uterus which does not normally show any trace of striped muscle. (See Unger, *loc. cit*, p. 721, and this JOURNAL, Feb. 1912, p. 102, on yellow elastic tissue in uterine fibromyoma. The highly disputed racemose sarcoma of the cervix, where Pernice and others detected striped muscle fibres will be borne in mind by all who read Schlovsky's note.—REP.)

A. D.

Two Forms of Tubercular Salpingitis.

ABADIE, Oran (*La Gynécologie*, Feb. 1912) describes and illustrates with a coloured plate a case of tubercular cold abscess and one of pelviperitonitis with salpingitis. The first case was that of an unmarried girl of 18, who had recently suffered from localised pain. Examination revealed a tumour diagnosed as probably an ovarian cyst. Operation shewed it to be a salpingitis which was easily removed as there were no adhesions. Microexamination showed the presence of tuberculous giant cells. The patient regained robust health. The second case was one of bilateral salpingitis with tubercular infection of the peritoneum.

Abadie considers the unilateral cold abscess very rare: he thinks it due to a mild infection, progressing inside the tube without causing adhesions. Simmonds maintains that it is due to a tuberculous infection of an already diseased tube—streptococcus or gonococcus. On the contrary

Albertin considers it an infection of a previously healthy tube. The mode of infection is obscure. In the second case Abadie removed the appendages and performed a subtotal hysterectomy to remove as much infected matter as possible. E. H. L. O.

Fibro-myoma of Fallopian Tubes Weighing over Six Pounds.

AUVRAY (*Bulletin de la Soc. d'Obstét. et de Gyn de Paris*, Jan. 1912) operated recently on a sterile married woman aged 45. Her abdomen had become much distended without any functional trouble. The periods were scanty. Two attacks of dull pain, suggesting peritonitis, had occurred a short time before she consulted Auvray. The tumour was ovoid, as big as an adult head, and lay entirely above the pelvic brim, the uterus was bulky, retroflexed and distinct from the tumour whilst a swelling, also definable apart from the tumour, occupied the left fornix. As the tumour was median, movable transversely and dull on percussion, it was diagnosed as a cyst either of the ovary or of the great omentum. The operation, it should be borne in mind, was complicated, unlike an average hysterectomy for fibromyoma. There were firm adhesions to the parietes and the tumour had to be separated from the omentum by section after a chain of ligatures had been applied. Then dense pelvic adhesions required careful breaking down. The tumour was delivered through the abdominal incision; it was found to be connected with the left Fallopian tube by an elongated pedicle no stouter than a crow-quill. It had undergone torsion. The retroflexed uterus bore several small fibroids, the right appendages adhered to adjacent structures. The left tube, which was associated with the tumour, was dilated into a hydrosalpinx. The uterus was amputated above the cervix and removed with its appendages. The tumour weighed 2,800 grammes, or over six pounds two ounces. It was a degenerating fibromyoma, cystic through breaking down of necrotic tissue. The pedicle ran on to the upper part of the left Fallopian tube, about half an inch from the uterine cornu. It was carefully examined under the microscope. Sections of its middle portion displayed a canal with muscular walls, lined by a smooth mucosa bearing cylindrical epithelium. Sections taken close to the insertion of the tumour on to the dropsical left Fallopian tube showed all the characters of the tube itself, with a muscular coat where the fibres ran in separate layers and in different directions. In the midst of this muscular coat lay several small cavities lined with cylindrical epithelium. Between the tumour and the corresponding uterine cornu no trace of tubal tissue, mucosa or muscular wall could be detected. The patient recovered. Thus a fibromyoma developed in connection with an abnormal blind diverticulum at the inner limits of a Fallopian tube which did not communicate with the uterus. Auvray's tumour was the largest of its kind save Fehling's, which weighed three kilograms, or 6 lb. 10 ozs. Tubal fibroids are generally fibromyomas (29 cases collected by Auvray), a very few are adenomyomas and one solitary instance of pure fibroma has been recorded. Small nodules of fibrous tissue arranged concentrically are often detected in tubes the seat of interstitial salpingitis. Auvray notes that this concentric arrangement has been observed in two cases of fibromyoma where there were no evidences of inflammation.—Ectopic gestation has been reported several times in association with fibroids of the Fallopian tube. Diagnosis is hardly possible, but tubal fibroids seldom give much trouble to the operator. Auvray finds that in all reported cases the patient recovered. Pichevin, in discussing Auvray's

case at a society meeting, observed that several instances of cystic tubal fibroid have been reported and in one (Barrette) there was twisted pedicle. They seemed to arise from tubes subject to salpingitis in so many cases that the inflammation appeared to be a distant cause of their development. There was an inflammation theory concerning the origin of the common uterine fibroid. The pathogenesis of Auvray's particular case seemed remarkable and clearly established. A. D.

True Ossification of the Fallopian Tube.

Pozzi and Bender (*Revue de Gynéc. et de Chir. Abdom.*, vol. xviii, February 1912) have prepared a weighty monograph on the development of true bone in the ovary and tube independently of teratoma or the so-called "dermoids," or of a true neoplasm of the osteoma or exostosis class. This osteogenesis is a retrogression of pre-existing histological elements, always preceded by more or less extensive calcification. As a rule the area of bone ultimately developed is far less extensive than the tract already calcified in which it develops. The bone never arises in pre-existent cartilage and it starts direct from connective tissue, ossifying in fact from membrane like the cranium. Only two instances of ossification of the Fallopian tube have been reported, one by Michaud in 1908, and the second by Emelianoff in 1911, but the authors add two more. In Michaud's case the ossification was diffused. The patient was a tuberculous girl aged 21, who had spat blood when a child, and had undergone removal of the vermiform appendix when about seventeen. Typical and very painful salpingo-oöphoritis followed. The appendages were removed and irregular masses, hard as stone, were detected in the Fallopian tubes. In the case reported by Emelianoff, the patient was 46 and there was a history of pelvic mischief after her sole confinement twenty-eight years previously. The right appendages were enlarged and adherent, and a stony body of the size of a pea projected into the tube; it was a true bony deposit. In both Pozzi and Bender's cases there had been, as in the other two, chronic inflammation of the tube, and in both the bony deposit appeared as a nodule on the tube at its junction with the uterine cornu, such as are developed in what German writers term salpingitis isthmica nodosa. The authors add to their monograph some fine coloured microscopic drawings. They shew clearly that these ossified areas in the Fallopian tube represent previous inflammation, as far as clinical evidence in the four known cases can show us, but the change is not essentially inflammatory as it has been observed in the corpus luteum. They refer to general pathologists, such as Letulle and Lenoir, who treat of inflammatory changes in connective tissue. A. D.

Ossification of the Ovary and Tube.

Pozzi and Bender (*Revue de Gyn.*, Feb. 1912) have reviewed the literature and report two cases. The first case was that of a patient who had ovariotomy performed for oöphoritis and tubal disease. The right ovary was twice the usual size; on section a yellowish hard nodule was found surrounded by the scars of corpora lutea. The hard mass was decalcified and sections were cut which shewed bony tissue. Microphotographs are given. The second patient had the pelvic viscera removed for papillomatous disease of both ovaries. The cysts were the size of the fist. The left Fallopian tube was healthy, the right contained calcareous nodules. The papillomatous cyst contained a small nodule of bone.

Going into the published cases they exclude a large number as being cases merely of calcification of portions of the ovary (especially of a corpus luteum) and not examples of real bone formation. Excluding dermoids, they have altogether collected seven cases of true bone-containing tumours of the ovary.

Their two cases of ossification of the Fallopian tube were found in patients with salpingo-oöphoritis. An osseous centre was found in the wall of the right tube of a patient who had chronic tubal disease, and near the uterine cornu in another patient who had had a double pyosalpinx removed. They have only found two other cases in the literature. The bone has been found in immediate contact with the connective tissue of the organ and not in the centre of a cartilaginous nodule—thus excluding the possibility of the ossification of a "rest" of cartilage. The article is illustrated by coloured plates and micro-photographs. C. W.

Diagnosis of Tubal Gestation from Tubal Inflammation.

BOLDT (*Amer. Journ. Obstet.*, January 1912), in reporting an instance of erroneous diagnosis at a meeting of the New York Academy of Medicine, declared that in cases of ectopic pregnancy pain was caused by moving the vaginal portion of the cervix forwards during palpation. The pain was referred to the lower part of the rectum. Some patients complained of a similar pain in the bowel even before they were examined. Boldt reported a case where this symptom was absent, yet other conditions seemed to point to tubal pregnancy. The patient was thirty-two, she had been married three years without any sign of pregnancy, but about three weeks before she consulted Boldt she missed a period and hæmorrhages set in a week later and still continued. There was pain in the left iliac fossa. The presence of colostrum in the breasts seemed almost pathognomonic, and the uterus was slightly enlarged and softened. A swelling could be defined on its left side. No attempt was made to palpate the ovary separately lest the suspected sac might burst, and the swelling felt very like a tubal sac. Boldt noticed, however, that moving of the cervix forward did not set up any pain in the rectum. At the operation the swelling proved to be an ovarian cyst of about the size of a walnut. The tube showed signs of catarrhal salpingitis. A. D.

Spontaneous Rupture of the Uterus at the end of Pregnancy.

GOLDSCHMIDT (*Monatss. f. Geb. ü. Gyn.*, Band xxxv, Heft 3, p. 362). The case reported at a meeting of the Middle Rhine Society of Obstetrics and Gynæcology is that of a woman aged 25, in her second pregnancy. Her first child was born spontaneously, and puerperal fever followed on the third day, with high temperature which fell suddenly after fourteen days, subsequent to the discharge of a large quantity of pus and detritus per vaginam. Later on abscesses appeared in both legs requiring repeated incision; these seemed due to some embolic process. Seventeen months thereafter the second confinement was expected, and about 10 to 12 days before the calculated period was reached the patient collapsed suddenly without any labour pains being manifested. Shortly before this, however, she had suffered from severe abdominal pains and very energetic fœtal movements. The medical man who was called in diagnosed internal hæmorrhage probably from premature separation of the placenta. She was immediately brought into the clinic, where spontaneous rupture was at once diagnosed. The woman was very anæmic with irregular fast feeble

pulse. Œdema and albuminuria were absent and there was no external hæmorrhage. Through the flaccid abdominal wall fœtal limbs could be felt on the right side directly underneath the parietes. In both flanks, especially in the left, absolute dulness on percussion extending beyond the limits of the uterus. Free fluid was present in the abdominal cavity, and fœtal heart sounds could not be heard.

On laparotomy blood partly clotted was found amounting to 2½-3 litres. The fœtus was at full time. The uterus exhibited a rupture at the fundus out of which was hanging a still partially adherent placenta. The uterus was removed in toto—the ovaries being left, and patient was discharged well after a fortnight.

The etiology seems to be the preceding puerperal metritis, and up till now only one similar case has been recorded—that of Wiedemann.

W. R. P.

Myoma Uteri with Tubal Pregnancy.

Stähler (*Monatss. f. Geb. ü. Gyn.*, Bd. xxxv, Heft 3, S. 364). At the same meeting two cases of this condition were reported as having come under observation within three weeks of each other, and are interesting because of their rarity. The first case was that of a woman 36 years old, married for 12 years without pregnancy having occurred. She had always been healthy. She had her last period six weeks before admission and complained of severe pain in the left side of the pelvis which had lasted three days. On examination a uterine tumour of irregular shape was found extending to the umbilicus . The adnexa could not be palpated and the left side of the mass was extremely tender, while pain was caused also only in the left side when the tumour was moved. Temperature and pulse were normal and there was no external hæmorrhage. On larparotomy a moderate quantity of dark fluid blood was found. Supra-vaginal hysterectomy with removal of both adnexa was easily accomplished (the Pfannenstiel incision having been used). The patient made an excellent recovery. Microscopic examination proved the correctness of the diagnosis.

The second case was that of a woman aged 38, who had had three normal labours and one miscarriage at 5 months—last pregnancy eight years previous to admission. Her periods had been regular, but had been absent five weeks. For some years back she had menorrhagia.

On examination the uterus had the form and consistency of a myomatous mass, there was no marked tenderness anywhere, and pulse and temperature were normal. Slight labour-like pains occasionally present. The diagnosis was that of fibromyoma with intrauterine pregnancy tending to abortion. In the next few days slight hæmorrhage appeared, and after a week distinct traces of decidua with increase of pelvic pain. No sign of internal hæmorrhage was present but some tenderness on palpation. The diagnosis appeared now to be extrauterine pregnancy and laparotomy was performed; the uterus with adnexa was removed supravaginally and the patient recovered well. Microscopic examination proved the diagnosis correct.

W. R. P.

Suppuration of an Eight Months Ectopic Gestation.

Ferré (*Ann. de Gyn. et d'Obstét.*, Feb. 1912) gives an account of a remarkable case. When he first saw the patient her condition was as follows:—Pulse 150. Temperature 36·8 C. Eyes sunken and skin dry. Abdomen much distended. The abdomen was emphysematous and gas was also infiltrating the vagina. On examining the pelvis, the cervix was

found to be partly dilated, but the uterus was empty although somewhat enlarged. The patient had had one child, the present pregnancy had been without hæmorrhages or pain until 9 days before she was seen by Ferré and then she felt something move in her abdomen and sent for the midwife as she thought she was in labour. Fœtal movements were definitely felt up till that day. Two days after (*i.e.*, seven days before she was first seen by Ferré) she had a rigor and the abdomen started to get bigger. During the next few days there was slight vaginal hæmorrhage and also vomiting and diarrhœa. These symptoms persisted. As soon as he saw the patient Ferré opened the abdomen below the umbilicus and found a decomposing fœtus, weighing 1,550 grammes, among the intestines; the membranes, in which the fœtus had been contained, were attached to the left broad ligament, bladder and surrounding organs. The uterus was the size of the fist and was retroverted. The right broad ligament had been stripped from the uterus and formed part of a pocket containing pus. There was an opening through into the cavity of the uterus. The placenta was situated near the cæcum.

The cavity was cleaned and drained freely. The packing was removed each day and the cavity irrigated—in this way discharge and placental débris were got rid of. The patient left the hospital in good general condition at the end of three months.

The author draws attention to the rupture of the sac occurring at the eighth month, the rapid putrefaction of the fœtus, the spontaneous perforation of the uterus and the recovery of the patient. C.W.

A Young Human Ovum in the Mesosalpingiolum of an Accessory Tube.

Professor Walthard (*Zeitschr. f. Geb. u. Gyn.*, Bd. lxix, Hft. 3) records an interesting case of extrauterine pregnancy, in which examination shewed that the ovum was embedded in the connective tissue of the mesosalpingiolum of an accessory tube. Although accessory tubes are not very rare, there has up to the present been recorded only one case of pregnancy in such a situation, namely that by Henrotin and Herzog. A recent case described by Lovrich and Finsterer cannot be regarded as proved to have been in an accessory tube. In the present case the facts have been demonstrated by serial section.

The present case is of special interest as shewing that the diversion of the ovum can occur even although the main tube is intact, and its fimbriæ and folds lined by healthy ciliated epithelium. In neither case is the route definitely indicated by which the ovum after fertilisation penetrated into the stroma, whether it entered the accessory tube and bored through the epithelium, or whether it embedded itself on the fimbriæ of the accessory tube.

Prof. Walthard points out that owing to the early destruction of the tube wall by the action of the fœtal ectoblast, it is a fortunate chance to find a good section of tube wall, unless serial sections are made. This omission is the reason why it has not been possible to designate several so-called abdominal pregnancies as accessory tube pregnancies. In future no abdominal pregnancy can be accepted as such, unless the entire sac has been examined for traces of an accessory tube.

In the present case the ovum appears to have died in the fourth week, and it is argued that if this ovum, which was embedded in a favourable position for nourishment, close to a free blood supply, died so early,

a fortiori an ovum embedded in a less favourable situation would perish earlier. It might well be that it would perish so early that the mother's symptoms would not be severe enough to call for operative treatment, and in this way many such cases might escape notice.

Although the fœtus was dead, yet the tissues were in a good state of preservation, and render the specimen of interest in regard to its histology. In the immediate neighbourhood there are no traces of proliferation in the maternal tissues, and only indications in the form of fibrinous degeneration and histiolysis of the maternal stroma and epithelium. The intervillous spaces are for the most part lined by ectoblast, but to a small extent by endothelium or well formed capillary walls. Accordingly in this form of pregnancy also the intervillous space lies at once within the fœtal ectoblast and in the maternal tissues.

The article is illustrated by six coloured plates and several cuts.

R. W. J.

Injection of "606" in the Last Month of Pregnancy.

Oui (*Bulletin de la Société d'Obstétrique de Paris, etc.*, No. 9, Dec. 1911) gives an account of a patient in whom he administered '606' in the course of the ninth month of her third pregnancy. Syphilis was contracted during the second month, and on admission to the clinique well marked mucous tubercles were present on both labia majora. Recognising the probability of fœtal infection, Oui determined to administer '606' and injected 40 centigrammes of the drug intravenously. At the end of four days the mucous patches disappeared, and the only inconvenience occasioned by the treatment was the production of slight diarrhœa which continued until the onset of labour, ten days later. At birth, the child weighed 4,380 grammes, and did not show any specific lesion. At the end of six months Oui examined both mother and child and found them still free from the effects of the syphilitic virus. The child weighed 6,550 grammes and had two teeth. The author's case therefore agrees with the work of Lemeland (*Obstétrique*, April 1911), which tends to show that the use of '606' in pregnancy is not attended with the serious disadvantages which have been attributed to it.

H. B. W.

REPORTS OF SOCIETIES.

ROYAL SOCIETY OF MEDICINE.

Sections of Obstetrics and Gynæcology.

Meeting held Thursday, March 7 1912.

The following specimens were shown:—

Dr. Lediard (Carlisle): (1) Sacral teratoma in an infant two days old—operation and recovery. (2) Large warty fibroma of labium.

Dr. Briggs (Liverpool): (1) Fibroid of uterus of unusual character. (2) Large placenta in case of ectopic gestation three months beyond term.

Dr. Clifford White: Fœtus with congenital hereditary Graves' disease.

Dr. Hubert Roberts: (1) Demonstration under the epidiascope of a three months' abortion placenta undergoing marked calcareous degeneration. (2) Sections of ovarian concretions (hæmatoliths) and of the cyst wall in which they were contained.

Dr. Lediard read a short communication on a case of

Extra-peritoneal Dermoid Cyst

which had suppurated, occurring in a patient, æt. 26, who was operated upon in 1906. The tumour was of the size of a six months' pregnancy, and had been felt for four months. The peritoneum was raised by the growth, and incision of the abdomen revealed a silvery-surfaced tumour. The cyst contained sterile pus to the extent of two pints. Traction and finger dissection sufficed to extract the cyst without damage to the ureter or other organs. The cyst was thick-walled for the most part, and contained four teeth, nodules of cartilage, and some hairs. The patient made an easy recovery, and is at present in good health, *i.e.*, six years after operation.

Dr. Henry Briggs read a short communication on

Cæsarean Section in a Case of Dystocia due to Loops of Cord round Fœtus at Term.

He remarked that a short umbilical cord, whether absolutely short or relatively short, by being coiled round the fœtus, may arrest descent and prevent engagement of the head in the pelvic brim. Such extreme cases are very rare. In the writer's case, the patient, a young woman of 22, was admitted to the Liverpool Maternity Hospital at the full term of her third pregnancy at 10.30 a.m. on January 28th 1912. Labour had been in progress 10½ hours, and the cervix admitted the finger. Pains were slight. On the following day the membranes ruptured spontaneously, and at mid-day the cervix was half dilated. At 11 p.m. the same day the cervix was still incompletely dilated, and the head was still above the brim. The general condition of the patient remained good, violent expulsive pains being relieved by an injection of scopolamine and morphine. The patient was first seen by Dr. Briggs after she had been 43 hours in labour, and up till the completion of the 52nd hour the conditions seemed consistent with the birth of a living child when the cervix was fully dilated and the head engaged. After the patient had been 52 hours in labour, she was examined

under an anæsthetic, and the fœtal head palpated with the hand in the vagina.

The sagittal suture lay nearer the pubes (Litzmann's obliquity); the disengaged head receded readily above the brim, as if its ascent were easier than its descent; the manipulation of the head elicited the sensation of its being held from above, and the head persisted in lying transversely high up and inaccessible. The fœtal heart was beating normally. The obstruction within the uterus was beyond any safe method of attack from below. Patience in awaiting natural efforts had been adequate, if not excessive. It was therefore decided to effect delivery of the child by Cæsarean section. It was then found that there were three complete collar-like, and appreciably tight, coils round the neck. From the navel to the neck the cord passed under the right shoulder and across the back of the chest and over the left shoulder. The pallor of the child when first delivered was alarming. After loosening the coils of cord the child began to breathe, and is still thriving.

The author was of opinion that delivery by forceps or version would have been difficult, if not impracticable, and that the life of the child entirely rested upon the treatment by Cæsarean section.

Dr. W. E. Fothergill read a short communication, entitled

A Plea for the Use of Pathological Classification of the Diseases of Women.

The writer referred to the disadvantages of the usual anatomical method of classification, and the necessity for some new arrangement of groups of diseases based on pathological resemblances and differences. The anatomical plan is often badly and illogically applied. Thus symptoms are often described as diseases of one organ or another, and real morbid conditions often placed under a wrong heading:—"Cystocele" and "rectocele" are often called "diseases of the vagina," while "prolapse" and retroversion are misplaced amongst "diseases" of the uterus." All four should be classed under abnormalities of the pelvic connective tissue. The writer referred to primary genital tuberculosis, and pointed out the inconvenience to the student in finding stray paragraphs on this subject scattered through his text-book. Similarly with regard to gonorrhœal and septic infections. The important feature of a disease is not its symptoms and signs, its cause or its treatment, but its nature or kind. When a student decides that a gynæcological trouble is a disease, say, of the vagina, he is generally wrong, and if he is right he is no wiser, no nearer a complete diagnosis. When, however, he discovers that a condition is the result of infection, a result of injury or a new growth, much valuable information about the case is gained. The writer suggests the following main groups, both for clinical teaching and for systematic work:—

1. Developmental errors: (*a*) Congenital; (*b*) At puberty.
2. Vascular changes.
3. Mechanical changes.
4. Results of infection.
5. Progressive conditions: New Growths; Overgrowths; Cysts.
6. Retrogressive conditions.

Any arrangement with main divisions such as these has many advantages in teaching. It is logical and complete, there is no cross-classification, and the groups are mutually exclusive. They are already familiar to the student through his pathological work, and they are few enough to be easily remembered.

ELECTRO-THERAPEUTICAL SECTION.

THE RADIO-THERAPEUTIC TREATMENT OF UTERINE FIBROMA: INDICATIONS, TECHNIQUE, RESULTS.

By Dr. H. BORDIER, Professor Agrégé, Lyon.

(*Abstract of a Paper read on Friday, March* 15 1912.)

After some years of experiment and indecision, as is the case with most new theapeutic methods, the treatment of uterine fibroma has arrived at a state of precision, thanks in part to the progress realised by the technique which I have established. We may, at the present day safely assure the patient that she runs no risk of radio-dermatitis, either immediate or deferred, and that the menopause will be obtained after three, or at most four, series of irradiations, provided the case be one which comes fairly within the indications which I shall set forth in this paper.

Technique. The X-ray irradiation is carried out in a series of cycles, each cycle comprising nine separate irradiations of the median region of the abdomen and the iliac regions. There are thus three ports of entry for the X-rays, one median and two lateral: the cycle of nine irradiations being given each month in the interval between the menstrual periods.

The two most important factors are, firstly, the dose of X-rays, and, secondly, the filtration of the rays. My technique has at last been perfected so that the incident dose—that is the dose falling on the aluminium filter—shall be always the same, and easily measurable. All that remains, then, is to choose the appropriate filter according to the order of series and the precise number of the cycle.

As regards the median area, or port of entry, I always employ the same thickness for the aluminium filter—viz., 3·5 mm. This region should always be carefully protected, so that the skin may not be injured in case a subsequent operation should be required.

As regards the lateral ports of entry at the flanks, the thickness of the filter will vary from ½ mm. to 3 mm. The aluminium filter, placed on the abdomen, is connected to the earth by means of a flexible metallic wire. The dose of the incident rays may be measured with great facility by means of Bordier's radiometer. The pastille is stuck on to the filter itself, and the dose to be given corresponds to tint 3 of Bordier's scale, which is exactly equivalent to 5 H. The pastille should be compared with the scale by the light of a match, a candle, a benzine lamp, or other artificial light of slight actinic power.*

The Röntgen bulb should always be placed at the same distance from the filter; a convenient distance is the breadth of the hand, the four fingers being interposed between the bulb and the filter. I employ a water-cooled Müller tube, 16 cm. in diameter, regulated so as to emit rays of penetration 8° to 10° Benoist.

Filtration. The following table shows my formula of filtration for each lateral port of entry of the X-rays on their way to the ovary:—

INCIDENT DOSE ON THE FLANK 5 H.

	Irradiation.		
	First	Second	Third
First cycle ...	0·5 m.	0·5 m.	1·0 m.
Second cycle ...	0·5 m.	1·0 m.	1·5 m.
Third cycle ...	1·0 m.	1·5 m.	2·0 m.
Fourth cycle ...	2·0 m.	2·5 m.	3·0 m.

* The English model of Bordier's radiometer may be procured at Messrs. Schall and Son, 79, New Cavendish Street, London, W.

The dose incident on the filter being 5 H., and the absorbent power of the filter being known, it is easy to calculate the total quantities received by the right and left flanks respectively during each cycle. The time required to obtain the dose 5 H. should not exceed five or six minutes.

During the irradiation of the lateral regions the median region of the abdomen is protected by a strip of lead, the edges of which should extend at least two fingers' breadth to either side of the middle line.

The séances are to be given one each day. There should be an interval of at least three weeks between each cycle. As regards injury to the skin, even at the end of the fourth cycle of irradiations there is only a slight brown coloration; I have in no case seen the slightest sign of radio-dermatitis.

Indications. The indications for radio-therapeutic treatment depend on the following factors :—

(1) Age of the Patient.—I would put the inferior limit of age at 39 years, as before that age the treatment for obtaining an artificial menopause would be too long and tedious. It is somewhat difficult to fix the superior limit of age. The patient should be of such an age that her monthly periods still persist, or, at all events, these should not have ceased longer than a year.

It is therefore between the ages of 39 and 52, or at most 55, that radio-therapeutic treatment is indicated. It is before this age that surgical intervention gives its best results, and its successes are less constant and less brilliant precisely at the age when radio-therapeutic treatment is most clearly indicated.

(2) Nature of the Fibroma.—The interstitial fibroma is the one which is most amenable to radio-therapeutic treatment. The pediculated or subperitoneal variety is better treated by surgical operation.

(3) Hæmorrhage.—The fibromata which have furnished me with the most admirable results are those which have occasioned the most copious hæmorrhages—cases where the periods have been very copious, with abundant clots, or replaced by veritable hæmorrhages. As a rule, after the second cycle of irradiation, the discharges have completely and permanently disappeared.

(4) Size of the Fibroma.—Fibromata of moderate volume are more easily influenced than those of larger size, although a marked regression in size has been obtained in fibromata reaching above the umbilicus, the size of a child's head. When the volume of the tumour is excessive it is best to advise surgical intervention.

(5) Hæmorrhages of the Menopause.—These are easily cured by radio-therapy, and this after two or three cycles of irradiation, according to the degree of corpulence of the patient.

Contra-Indications. Radio-therapeutic treatment is not applicable where the fibroma is calcified, or presenting necrobiotic degeneration. In these circumstances it is best to have recourse to a surgical operation.

The same may be said of myomata which are malignant, or infected, or gangrenous, or when there are complications such as suppurating salpingitis or pelvic peritonitis. Such cases should not be treated by the radiologist, but by the surgeon. In order to avoid any doubt in the diagnosis all patients suffering from uterine myoma should be seen by a gynæcologist, who should decide on the method of treatment to be carried out, and who will, of course, be guided by the indications which I have here formulated. Even when every contra-indication is taken into account,

there remain a vast number of fibromata which may be easily and certainly diagnosed, and which may be safely and successfully treated by radiotherapy—that is, by a non-surgical method of the greatest efficacy.

Results. After the second or third cycle of irradiation the fibromatous patient usually entirely loses all discharge, the hæmorrhagic discharge as well as any colourless discharge from which she may have suffered. At the same time the volume of the fibroma will have begun to be reduced as early as the commencement of the second cycle. This diminution of volume steadily continues, and after the third or fourth cycle we often find that the uterus has regained its normal size. It is not at all rare to see a fibromatous uterus of the size of the fist atrophy after three or four cycles of irradiation to such an extent that it can no longer be perceived through the abdominal wall.

NORTH OF ENGLAND OBSTETRICAL AND GYNÆCOLOGICAL SOCIETY.

Meeting held at Sheffield, March 15th 1912.

Mr. RICHARD FAVELL, Vice-President, in the Chair.

Dr. NEWTON showed a specimen of chorionepithelioma.

Mr. CUFF reported a case of extreme vesical incontinence, associated with prolapsus uteri, successfully treated by laying bare the urethra, putting in some puckering stitches, then doing a very thorough anterior and posterior colporrhaphy and Gilliam's operation.

Dr. FITZGERALD showed (*a*) A mucous polypus of the cervix removed from a patient aged 31. The patient, who had been married for 12 months, complained of dyspareunia, pain in the back, occasional menorrhagia, and a persistent offensive leucorrhœal discharge. The tumour when removed was the size of a tennis ball, and was brought before the Society on account of its unusual size, and the similarity of its structure, naked eye and microscopical, to that of a malignant adenomatous growth of the cervix and uterus recently shown by Dr. Fitzgerald. This tumour showed no indication of malignant change. (*b*) A dermoid of the right ovary, and a pedunculated fibroid tumour which was attached to the posterior wall of the uterus, removed from a patient aged 70. An interesting feature in the history of the case was that two years before, she suffered from an acute illness which was attributed to a pelvic tumour. Her condition at that time had been so grave that it was feared she would not survive. She, however, got well. The dermoid shows at its upper end a blood clot the size of a ping-pong ball, which no doubt was the result of torsion of the pedicle having occurred at the time of the previous illness. She complained of constant pain in the right iliac fossa, and low down in the back.

Mr. MILES H. PHILLIPS (Sheffield) reported a case of severe

CONCEALED ACCIDENTAL HÆMORRHAGE

which had been successfully treated by Cæsarean section followed by hysterectomy. The patient was 33 years old. During the previous thirteen and a half years she had had nine full time labours, and one

miscarriage. Until one morning a fortnight short of full time she had been in good health. She was then awakened by severe abdominal pain. She fainted two or three times. There was no external bleeding. Dr. Walker of Tinsley recognized the condition, and at once sent her into the Jessop Hospital. On admission she was very pale, with drawn features, and a feeble pulse of 120. The uterus was tense and tender; the child could not be felt. The cervix was thick and firm and just admitted the tips of two fingers. On attempting to rupture the membranes a gush of blood poured down the vagina as if from a tap. A speculum was at once inserted and the vagina tightly packed with gauze. Blood soon began to escape freely through the packing and the pulse became uncountable. Considering that an immediate hysterectomy might give her a chance the house surgeon, Dr. Chisholm, promptly had the theatre got ready and telephoned for the surgeon on duty. On opening the uterus a large quantity of blood and clot escaped. The child was as dead-white as the mother. The placenta was found loose on the posterior wall of the fundus, completely separated from the placental site which was on the anterior wall. The membranes were intact. The uterus was thin and perfectly flabby. It was at once amputated at a level slightly above the cervix. No hæmorrhage occurred from any of the cut edges. The patient was too bad to move from the hot operating theatre for several hours. Pituitary extract, oxygen, saline infusions, strychnine and digitalin were used. For thirty-six hours recovery was very doubtful. Thereafter she made steady progress which was delayed, in the third week, by a slight paracervical cellulitis.

Dr. OLDFIELD read a paper on Diverticulitis as a cause of pelvic inflammation with a report of three cases.

The disease is fairly common and well known to surgeons. Although the lesion is usually pelvic the disease has apparently escaped the notice of gynæcologists. The two chief clinical varieties are (1) left-sided "appendicitis." (2) Chronic obstruction. The former may assume various forms just as appendicitis does, and not uncommonly causes pelvic abscess or even general peritonitis.

The latter variety resembles obstruction from malignant disease of pelvic colon, and on exploration and even after resection of the portion of bowel involved the disease is usually taken for carcinoma. In nature it is inflammatory and arises in connection with small multiple diverticula from the colon, particularly the sigmoid. On dissection these diverticula are found to be hernias which take the form of little pockets varying in size from a pea to a hazel nut. The mucosa is herniated through slits in the muscular coat of the bowel and generally projects into the sigmoid mesentery of the epiploic appendages. It can be readily imagined how concretions or foreign bodies came to lodge in these pockets, and further that inflammatory diseases will result.

In operating for pelvic inflammation it is necessary to be mindful of the existence of this disease because while it simulates left tubo-ovarian disease, its operative treatment is both more difficult and more dangerous. Indeed the death rate from operations in chronic cases is very high, and is mainly due to the fact that the true nature of the condition has not been determined until after death.

EDINBURGH OBSTETRICAL SOCIETY.

Meeting held on March 13th.

Dr. HAIG FERGUSON, President, in the Chair.

The PRESIDENT shewed (1) Double tuberculous pyosalpinx; (2) Uterus and appendages removed for gonorrhœal pyosalpinx.

Dr. HAULTAIN shewed uterus and appendages from a patient who had shortly before been operated on for acute appendicitis. She made a poor recovery, having continuance of pain and menorrhagia. On examination Dr. Haultain found two tumours behind the uterus which he took to be fibroids. Curettage did no good, therefore laparotomy was determined upon. On opening the abdomen the tumours were found to be appendage tumours very adherent. The uterus and the tumours were removed, and on examination the tumours turned out to be the terminal parts of the tubes distended with caseous pus. One tube was twisted twice upon itself.

Dr. MCKENDRICK shewed a pelvimeter for use with x-rays.

Dr. DAVIDSON read notes of three cases of Transplantation of the Ovary in the human being. The patients were persons in whom palliative measures had failed, and recourse to oöphorectomy was necessitated. All were women under thirty, so homoplastic ovarian grafting was tried to avert the symptoms of the menopause. One case was a complete failure and shewed symptoms of the menopause afterwards. One was a comparative success, in so far as menstruation returned and persisted for seven months, but was complicated by the development of a fibroid in the uterus. She has shewed no menopause symptoms. The third started to menstruate three months after the operation and has menstruated every month since. In none has there been any return of pain either locally where the ovary was implanted into the rectus abdominis, or pelvic at the 'periods.' He considers it a superior method of treating pathological ovarian conditions to attempts at conservative surgery, as the transplanted grafts have shewn no signs of further changes, whereas pieces of ovary left in situ tend to become pathological and often require a second operation. Though admitting that the grafts may not be permanent, he contends that it produces a more gradual and therefore milder onset of menopausal symptoms.

Dr. BARBOUR thought the paper opened up several interesting questions. Was the recurrent hæmorrhage menstrual, even although periodic? Can one expect from a graft the same effects as from an ovary normally situated? The ovarian secretion is presumably dependent upon the ripening of follicles as it stops when the follicles cease to ripen. Does ovulation go on in a graft? He thought that the artificial menopause was very often not at all severe except in neurotic patients.

Dr. BALLANTYNE thought the cases on the whole added to the evidence that an ovarian graft would prevent menopausal symptoms. It would be more important if the graft could be implanted in the uterus, so as to make impregnation a possibility. In rabbits a graft had been placed with a small portion of its surface inside the uterus, but so far no pregnancy had resulted.

Dr. HAULTAIN said that it was his practice to remove the uterus when he had to remove both ovaries, as he had now a series of nine cases in which the uterus when left behind had developed malignant disease. His

experience was that the artificial menopause was nothing like so severe as the laity and the great bulk of the profession believed. In asylums there were only 0·5 per cent. of the women without their ovaries. A much larger percentage were without their appendixes. His experience taught him that 60 per cent. suffered not at all, 30 per cent. suffered for a year, and the remaining 10 per cent. suffered severely. Much depended on the sexual temperament of the woman. There was no harm and there might be much good in grafting ovaries.

Mr. SCOTT CARMICHAEL reviewed his grafting experiments on animals. He had only had one case in the human being and it had been followed by menopausal symptoms. He was convinced that grafts can grow up to a certain point but that they always ultimately degenerate. In the meantime however they might be helpful in mitigating the symptoms of the menopause. In spite of Bond's observations to the contrary he was confident that when resection of parts of the ovaries was done the remainder hypertrophied. The grafts in the cases recorded, however, had not shewn this.

The PRESIDENT said the paper assumed that the ovaries were responsible for menstruation. He had had four cases in which menstruation had persisted after oöphorectomy with high supravaginal hysterectomy. He agreed that the practice of resecting diseased portions of ovaries was very unsatisfactory, and very often meant a second operation to remove the parts left. He did not think that grafts were likely to be permanent but might be said to "let the patient down gently," and as such were good. He had had success in some cases of severe menopausal symptoms with ovarian extracts. He quite agreed that the severity of the artificial menopause was greatly exaggerated.

Dr. DAVIDSON replied.

Dr. ROBERTSON read a paper in which he advocated Incision of the Perineum in Primiparæ as a suitable treatment in prolonged labours, in occipito-posterior cases, and in rigidity of the perineum. He claimed that a right lateral incision to an inch outside the anus, and for two inches up the vagina, carefully stitched in layers by catgut, the muscle ends being brought together, and the skin stitched with silkworm gut, saved the detachment of the levator from the symphysis, prevented the prolapse of the anterior wall, and was easy to stitch. The last part of the paper dealt with the immediate repair of the cervix after delivery.

Dr. HAULTAIN said he had tried episiotomy with more or less success, and given it up. Tears in the perineum were almost normal, and they were usually in the middle line. Lateral tears were worse in their results as they tore the fibres of the levator. Therefore why imitate the worst form of tear? Again the great difficulty was to know in which cases it was necessary to cut.

Dr. FORDYCE said he thought if forceps were avoided more in primiparous labours there would be fewer tears.

Dr. Ritchie said his experience of tears stitched at once was so uniformly satisfactory that he preferred to maintain the old attitude.

Dr. WATSON said he had found Lapthorn Smith's method of introducing the sutures before the tear occurred gave very good results.

The PRESIDENT recalled that the late Dr. Milne Murray, who believed in following Nature as far as possible, used sometimes to split the perineum up the middle line.

Drs. MCKENDRICK and YOUNG demonstrated a new method of internal pelvimetry on the living subject by x-rays. As a result of an investiga-

tion of dried pelves of different sorts, it was found that the plane of the transverse diameter of the brim coincides with a line joining the upper margin of the symphysis and the posterior superior spines. The plane of the conjugate is more variable, but in 95 per cent. of the specimens examined a line joining the upper margin of the symphysis to the promontory, when produced, passed through a point two inches above the level of the posterior superior spines. By their method of measuring the authors claim accuracy for the transverse diameter, but in the conjugate there is occasionally an error of not more than $^1/_{10}$th of an inch.

A skiagram is taken with the patient in the prone position, the x-ray tube being 36 inches vertically above the plate.

A plumb line is dropped to the region of the sacro-coccygeal joint and the point marked by a metal X.

The P.S.S. line and a point two inches above it on the spine are similarly marked with metal and their respective distances from the photographic plate recorded. The distance of the pubes from the plate is also noted.

The x-ray exposure is made and a print or tracing taken and applied to the x-ray pelvimeter.

The x-ray pelvimeter, devised by Dr. McKendrick, is a working model of the x-rays, and reproduces accurately the conditions under which the skiagram was taken.

The focus point of the x-ray tube is represented by a pivot from which cords diverge. These cords represent x-rays and are kept taut by means of steel springs. The axial ray is a fixed cord, and is cut at right angles by a fixed transverse cord 36 inches from the pivot. The other cords are movable about the fixed pivot. For ease of measurement other movable transverse cords complete the instrument. These move up and down on a fixed scale marked in inches, etc.

The skiagram is applied to the pelvimeter in such a position that the mark X (focus point) is at the intersection of the fixed axial and transverse cords, the spines of the vertebræ lying under the transverse cord. The movable cords representing x-rays are now moved till they coincide with the bony points marked in metal and with the pubes and promontory on the print.

The print is now relative to the instrument exactly as the plate was when the x-ray exposure was made but on a different axis. The original distances of the bony points from the plate are now fixed on the pelvimeter by means of the transverse cords.

The intersections of these and the x-ray cords represent accurately the original relative position of the bony points.

A straight-edge applied to the intersections will represent the plane of the conjugate, and where the x-ray cord applied to the promontory cuts the straight-edge will correspond to the original site of the promontory.

We have thus reproduced by means of the pelvimeter the exact conditions under which the x-ray was taken, and a measurement from the pubes point to the promontory points on the cords will give the measurement of the conjugate.

In the same way the transverse diameter is measured : but in this case the plane is marked by a straight-edge from the intersection of (1) the P.S.S. cord and the transverse cord representing its distance from the plate, and (2) the pubes cord and the transverse cord representing its distance from the plate.

Where the straight-edge cuts a perpendicular dropped to the widest part of the brim, is the point across which the transverse diameter is measured (for example say 3 inches). The print is now turned round with X as its centre, and is brought to lie so that the vertebral spines are in a line with the original plumb line. Two x-ray cords are then applied to the widest part of the brim of the pelvis and the distance between them (say 3 inches) will give accurately the measurement of the transverse diameter.

The x-ray pelvimeter is being manufactured by Riemens and Co., London.